

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	POST	Examiner:	MAYO, TARA L
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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This is an appeal from the Final Rejection mailed March 3, 2006 and the Advisory Action mailed September 21, 2005, in which claims 16-45 were rejected. The Notice of Appeal was filed on June 1, 2006.

The \$500 large entity fee under 37 C.F.R. §41.20(b)(2) for filing a brief in support of an appeal has been charged to a credit card. Any underpayment should also be charged (and any overpayment should be credited) to Deposit Account No. 501257.

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REAL PARTY IN INTEREST

The real party in interest is Ecolab Inc., by virtue of an assignment recorded at 015285/0317. Ecolab is a Delaware corporation headquartered in St. Paul, Minnesota. Further information regarding Ecolab Inc. is available at <http://www.ecolab.com>.

RELATED APPEALS AND INTERFERENCES

There are no other prior and pending appeals, interferences or judicial proceedings known to Appellant, the Appellant's legal representative, or assignee Ecolab Inc. which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Fifteen claims were filed with the application. A preliminary amendment was filed on August 27, 2003 canceling the original fifteen claims and adding thirty new claims (claims 16-45). One claim was later cancelled (see Amendment of October 8, 2004 cancelling claim 19). Claims 16-18 and 20-45 were pending when this appeal was filed.

No claims are allowed. Claims 16-18, 20-24, 26-28, 30, 33, 34, and 42-45 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893). Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893) and further in view of Failor (U.S. Pat. No. 5,860,174). Finally, claims 31 and 35-41 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893). All of these rejections are being appealed. A clean copy of the appealed claims 16-18 and 20-45 is reproduced in the Claims Appendix.

STATUS OF AMENDMENTS

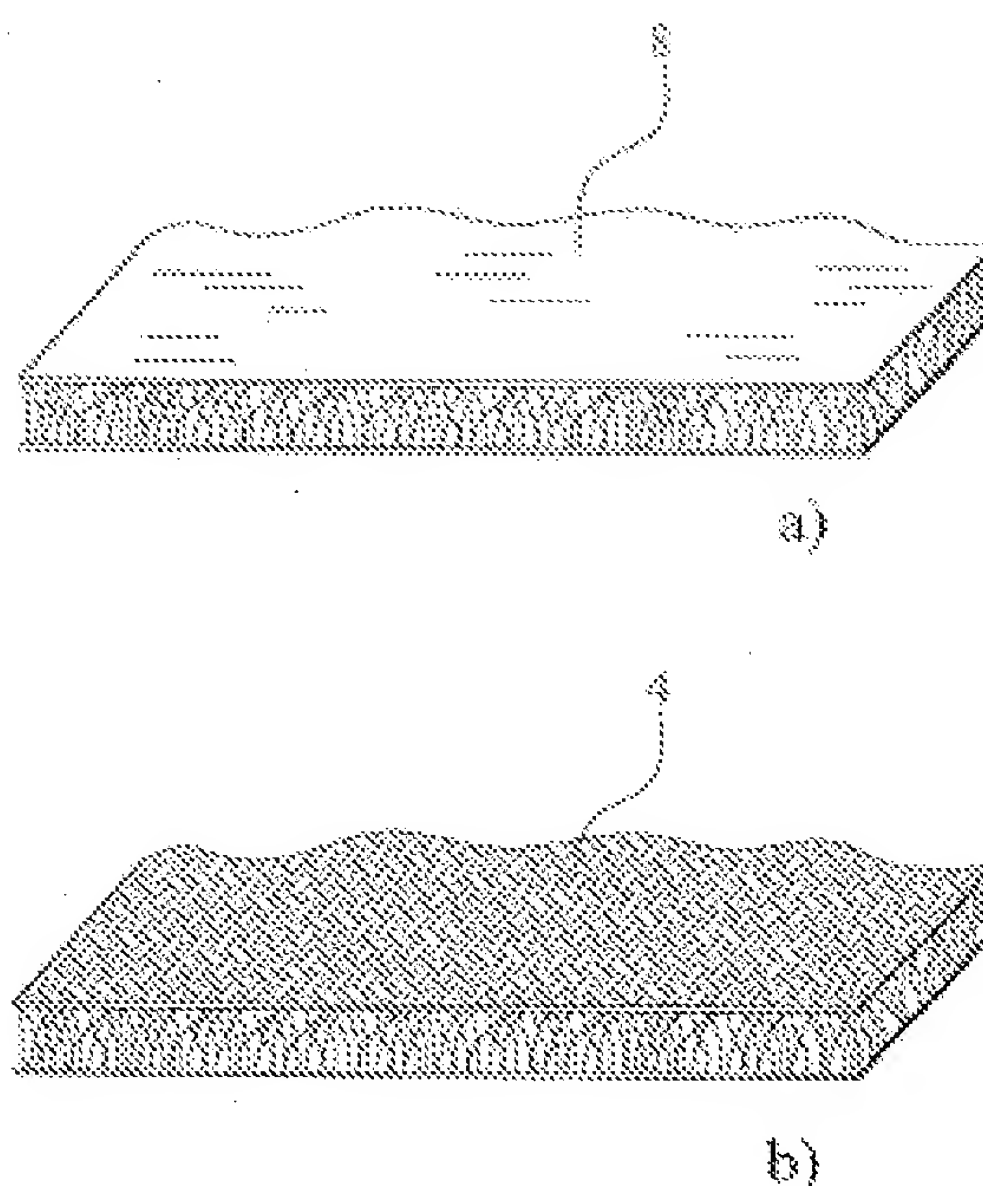
The Final Rejection was mailed March 3, 2006. In it, claims 16-18, 20-24, 26-28, 30, 33, 34, and 42-45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893). Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893) and further in view of Failor (U.S. Pat. No. 5,860,174). Finally, claims 31 and 35-41 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893). No amendments were made after the Final Rejection of March 3, 2006. All of the amendments made by Appellant have been incorporated into the claims and are included in the claims as listed in the Claims Appendix.

SUMMARY OF CLAIMED SUBJECT MATTER

Rescue mat underlays or rescue mats are used in hospitals and other patient care locations under mattresses for use in the event of a catastrophe where patients would need to be rescued from a building. See page 1 of the Application, lines 12-18. When used to rescue a patient, a rescue mat allows a single person to move a patient lying on a mattress across the floor and even down stairs. This is advantageous compared to a stretcher which typically requires two people and offers clear advantages during an emergency where bed-ridden patients can be rescued as fast as possible with a minimum number of rescue workers so that other rescue workers can be assisting other patients. Id. The fact that rescue mats are used in emergency situations where time is critical and mistakes can mean serious and even life-threatening consequences should be kept in mind when evaluating the Final Rejection's assertion that Appellant's invention is obvious, particularly with respect to the combination of Hemphill and Böttger et al.

As discussed in the response of December 14, 2005, Appellant's invention is directed to an improvement in rescue mat underlays and a specific rescue mat embodiment where the rescue mat underlay comprises spacer woven fabric. See page 2 of the Application, lines 13-22. The use of spacer woven fabric in the underlay has advantages that a regular sheet of plastic or other forms of "spring travel" not have. For example, the spacer woven fabric provides a hard spring which provides spring travel. While the spring constant of the underlay will be greater than that of the mattress, the combination of the underlay and the mattress provides improved cushioning which is important when carrying a patient along the ground or especially down stairs. Id. Many hospital or nursing home patients are frail, especially if they are bed-ridden. Some patients may have medical conditions that make them especially sensitive to a rescue such as fragile bones, joint problems, recovery from a medical procedure, or a tendency for severe

bruising. Improvements in cushioning, especially when rescuing sensitive patients, are desirable. The rescue mat of the present invention addresses this problem. Additionally, other forms of “spring travel” such as foam or air bubble materials do not meet other objectives of the present invention such as flame-resistance and the need to have requisite tensile strength in the longitudinal direction of the underlay mat. See page 2 of the Application, lines 24-29. Spacer woven fabric is given a specific definition in the specification and this definition has been incorporated into the claims. Spacer woven fabric is defined as “a material which has two fabric cover layers which are held at a spacing of a few millimeters by distance-maintaining bridge threads.” See the paragraph on page 2 of the Application bridging page 3. It is the distance-maintaining bridge-threads that provide the spring characteristics of the underlay. Id. Figures 4 a) and b) show two embodiments of spacer woven fabric and are reproduced below:



Accordingly, independent claim 16 is directed to one embodiment of a rescue underlay having a substantially flat material comprising spacer woven fabric that provides spring travel, a pull member, and a patient securing belt. Independent claim 43 is directed to another embodiment of a rescue underlay similar to that described in claim 16, however, the pull member is specifically called out as a pull loop. Independent claim 44 is directed to another embodiment of a rescue underlay similar to that described in claim 43 but adds that the flat material is a flat plastic material. Finally, independent claim 45 is directed to a method of moving a patient using a rescue underlay where a patient is reclining on a rescue underlay for a mattress and moved from a first location to a second location where the underlay is a substantially flat material having spacer woven fabric and providing spring travel, at least one pull member, and at least one patient securing belt. Additionally, claim 45 states that the patient can be moved by one person.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on appeal include the following:

I. Whether claims 16-18, 20-24, 26-28, 30, 33, 34, and 42-45 are unpatentable under 35 U.S.C. § 103(a) over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893¹) (hereinafter “Hemphill” and “Böttger et al.”).

The March 3, 2006 Final Rejection (hereinafter “Final Rejection”) asserts that Hemphill discloses all of the features of the Appellant’s invention except for the features of the spacer woven fabric. See Final Rejection paragraph 3 on pages 2-4. The Final rejection uses Böttger et al. to teach the elements of the spacer woven fabric and states that “it would have been obvious to one having ordinary skill in the art of beds at the time of invention to modify the device shown by Hemphill ‘487 such that the flat material would comprise woven material as taught by Böttger et al. ‘893. The motivation would have been to enhance the dimensional stability of the material.” See Final Rejection, paragraph 3, page 5.

II. Whether claim 25 is unpatentable under 35 U.S.C. § 103(a) over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893) and further in view of Failor (U.S. Pat. No. 5,860,174) (hereinafter “Failor”).

The March 3, 2006 Final Rejection asserts that Hemphill and Böttger et al. disclose all of the features of the claimed invention in claim 25 except for “the plastic film being selected from the group consisting of polyurethane, polyester, and combinations thereof.” See Final Rejection,

¹ Appellant notes that claims 29 and 32 are noted as rejected on the Office Action Summary page but are not listed as rejected in the detailed Office Action, nor are claims 29 and 32 objected to as dependent on a rejected independent claim. Appellant assumes claims 29 and 32 are rejected and therefore incorporates the arguments herein as applied to claims 29 and 32. Appellant does not waive any additional arguments with respect to claims 29 and 32 because Appellant cannot argue the rejection until a rejection has been made. Appellant requests clarification if the Examiner intended to allow claims 29 and 32. Also, Appellant requests clarification as to the rejection of claims 29 and 32 if the Examiner intended to reject the claims. Appellant notes that in every Office Action, each pending claim should be mentioned by number, and its treatment or status given. See MPEP §707.07(i).

paragraph 4 on page 5 bridging page 6. The Final Rejection states that Faylor '174 discloses a patient transfer mattress where the bottom surface comprises a fluoropolymer film combined with a polyester fabric substrate and that it would have been obvious to a person skilled in the art of making beds at the time of the invention to modify the device shown by the combination of Hemphill and Böttger et al. to include the plastic film taught by Faylor. See Final Rejection, paragraph 4, page 6.

III. Finally, whether claims 31 and 35-41 are unpatentable under 35 U.S.C. §103(a) over Hemphill (U.S. Pat. No. 5,150,487) in view of Böttger et al. (U.S. Pat. No. 5,582,893).

The March 3, 2006 Final Rejection asserts that Hemphill and Böttger et al. disclose all of the features of the claimed invention except for the specific features called out in claims 31, and 35-41.²

² In addition to the 35 U.S.C. §103(a) rejections, the Final Rejection objected to the Specification for the first time because of the reference to claim numbers. Appellant will make the appropriate corrections with the next response.

ARGUMENT**I. REJECTION OF CLAIMS 16-18, 20-24, 26-28, 30, 33 34, AND 42-45 UNDER 35 U.S.C. §103(A):****ARGUMENTS CONCERNING CLAIMS 16, 18, 22-24, 26-27, 33, 34, AND 42-45**

The Final Rejection does not properly demonstrate a *prima facie* case of obviousness because the combination of Hemphill and Böttger et al. does not include any of the three basic criteria needed to make a *prima facie* case, namely a showing of all of the elements of the claims, a motivation to combine the references, and a reasonable likelihood of success.

Under well-established patent law, the Examiner bears the burden of making a *prima facie* case of obviousness. Obviousness is determined from the perspective of a person skilled in the art at the time the invention was made. In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. See MPEP § 2142.

When applying 35 U.S.C. § 103(a), the following tenets of patent law must be adhered to:

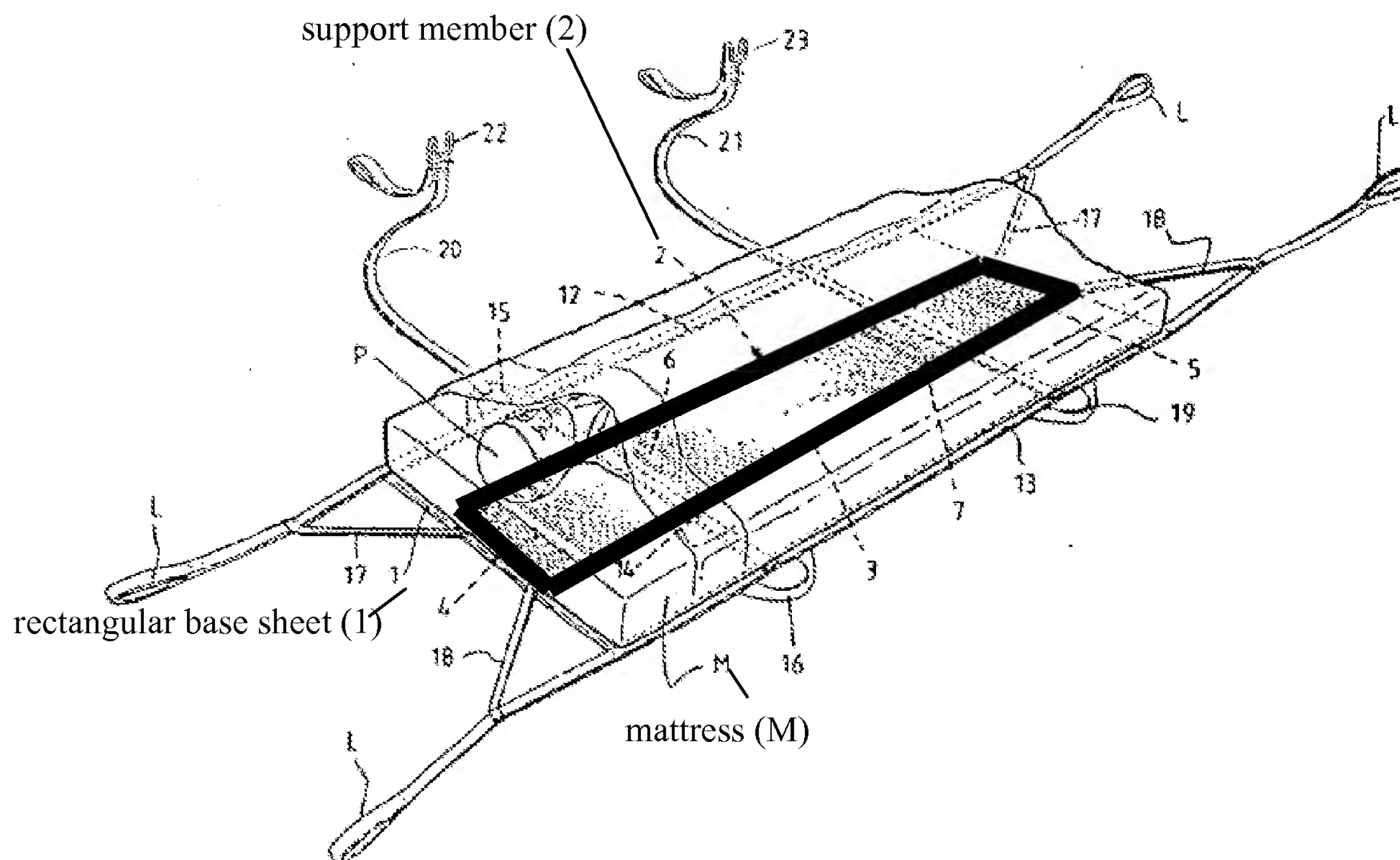
- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.

See MPEP § 2141.

i. Hemphill and Böttger et al. do not teach all of the elements of the claims of the present invention and specifically an underlay (1) that provides spring travel and (2) is substantially the same size as the mattress.

Claim 16 of the present invention includes “a substantially flat material comprising spacer woven fabric having at least two layers spaced apart by bridge threads and providing spring travel, *wherein the material is substantially the size of the mattress.*” According to the Final Rejection, Hemphill, as seen in Figures 1-3 discloses a rescue underlay for a mattress that is substantially the size of the mattress. See Final Rejection, paragraph 3, page 2. Appellant does not see where Hemphill teaches a rescue underlay that is substantially the size of the mattress, either in the specification or the drawings. On the contrary, Figures 1-3 show an underlay that is substantially *smaller* than the mattress. Figure 1 shows a mattress (M), a rectangular base sheet (1) that is substantially the size of the mattress, and a support member (2) that is substantially smaller than the mattress (bold outline added).



The rectangular base sheet (1) is characterized as “a generally rectangular base sheet (1) of flexible fabric, such as polyester.” See Hemphill, column 2, lines 50-51. The support member is characterized as “a relatively rigid support member (2) secured centrally to the base sheet.” See Hemphill, column 2, lines 54-55. The Examiner appears to be combining the base sheet (1) and the support member (2) to teach a substantially flat material comprising spacer woven fabric having at least two layers spaced apart by bridge threads and providing spring travel wherein the material is substantially the size of the mattress as called out in claim 16. However, putting aside the fact that Hemphill does not teach spacer woven fabric, Appellant does not agree that the combination of the base sheet and the support member teach this element. The Examiner

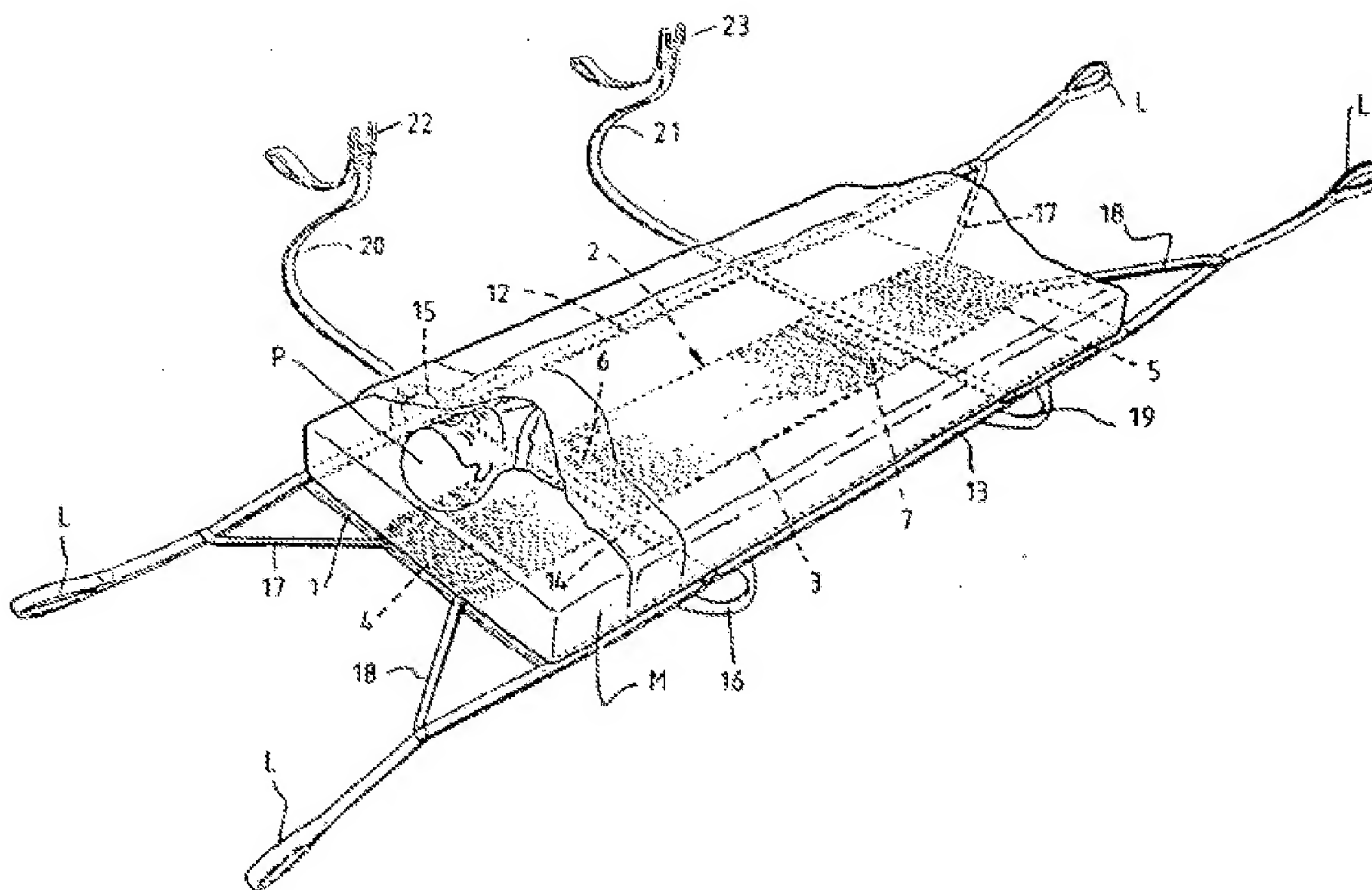
appears to be taking the position that it is the corrugations (3) in the support member that provide spring travel. Appellant believes that this conclusion was created by the Examiner using hindsight after reading Appellant's specification because this element is not stated in Hemphill either directly or indirectly. Appellant therefore disagrees that the corrugations teach spring travel. However, even if the corrugations are taken to provide spring travel, they only extend down the central portion of the base sheet according to Hemphill. Therefore, Hemphill does not teach a rescue underlay that provides spring travel and is *substantially the size of the mattress*. A rescue underlay that provides spring travel and is substantially the size of the mattress is important for several reasons. First, a significant percent of the population in the United States is overweight or obese³. A rescue mat that only provides spring travel down the center of the mattress will not provide sufficient spring travel for a patient that is overweight or obese. Second, a rescue mat that only provides spring travel down the center of the mattress assumes that the patient is centrally located on the mattress which may not be the case. Finally, a rescue mat that only provides spring travel down the center of the mattress does not increase the cushioning against the sides, for example, if the mattress bumps against a wall when a patient is moved out of a building. The base sheet does not meet this element because it does not provide spring travel or comprise spacer woven fabric. Böttger et al. is directed to a spacing fabric for reinforcement and does not remedy these shortcomings of Hemphill.

³ One website estimates that 61% of adults in the United States were overweight or obese in 1999. See Overweight and Obesity at a Glance, United States Department of Health and Human Services, http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_glance.htm.

ii. *Hemphill and Böttger et al. do not include a motivation to combine the references but rather teach away from Appellant's invention.*

As described above, Appellant's invention is directed to rescue mat having spacer woven fabric where the spacer woven fabric provides spring travel. In the Final Rejection, the Examiner is using Böttger et al. to teach spacer woven fabric and states that Böttger et al. in combination with Hemphill renders Appellant's invention obvious. Appellant respectfully disagrees.

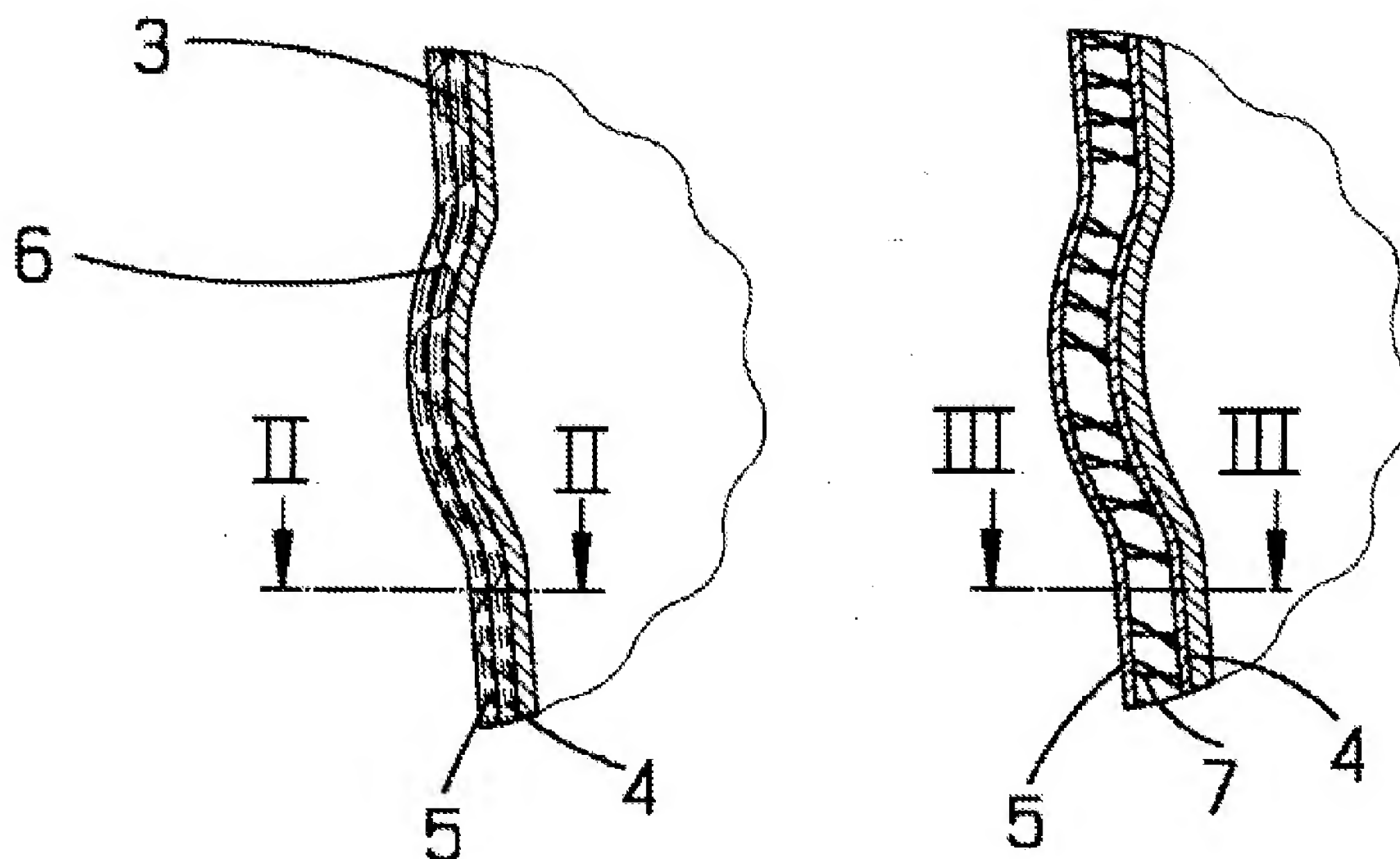
Hemphill is directed to an Evacuation Restraint and an embodiment of the evacuation restraint is reproduced in Figure 1 of the Hemphill patent.



The evacuation restraint in Hemphill is designed to resist soiling, minimize delays in the event of an emergency, provide easier handling, lower the cost of manufacturing, and simplify the

packaging envelope. Hemphill, column 1, lines 30-52. Accordingly, Hemphill discusses the nature of the base sheet (1), the support member (2), and the envelope. Hemphill, column 2, lines 50-55 and Figures 5, 6, and 7 and the corresponding text. Hemphill does not describe or characterize either the base sheet (1) or support member (2) in terms of its tensile strength or spring travel nor does it state that a base sheet (1) or support member (2) that has a relatively high tensile strength or improved spring travel would work with the invention disclosed in Hemphill or would be desirable. On the contrary, Hemphill actually teaches away from a base sheet (1) or support member (2) that provides spring travel because it states that “the support member (2) provides a relatively rigid flat surface covered by a base sheet (1).” Hemphill, column 4, lines 24-27. A rigid flat surface is contrary to the purpose of the present invention which is a rescue underlay that provides spring travel. See MPEP §2145. In addition to teaching away from the present invention, this same passage from Hemphill teaches away from a combination of Hemphill and Böttger et al. Hemphill calls out a rigid flat surface and Böttger et al. calls out a spacing fabric. It is improper to combine references where the references teach away from the combination. See MPEP §2145.

Böttger et al. does not remedy the shortcomings of Hemphill. Böttger et al. is directed to a spacing fabric for use in reinforcing structural components such as metallic plates, or containers such as tanks. Böttger et al., column 2, lines 20-35. The fabric in Böttger et al. is designed to be flat for a period of time and then expand upon heating to form two layers spaced apart. Id. This is demonstrated in Figure 1.



Böttger et al. does not teach or suggest that the spacing fabric can be used with rescue mats such as those described in Hemphill, or in the present invention. Further, the spacing fabric described in Böttger et al., i.e., a spacing fabric that starts out as two layers that touch and expand upon heating to two layers spaced apart, teaches away from the present invention because it would not be desirable or appropriate in the present invention where the purpose is to rescue people in an emergency and the layers have to come spaced apart versus expanding upon heating.

iii. To combine only a portion of the invention from Böttger et al. improperly overlooks the reference as a whole.

A fair reading of a combination of Hemphill and Böttger et al. would be the evacuation restraint of Hemphill having a mattress and an underlay where the underlay has the spacing fabric of Böttger et al., where the spacing fabric starts out as one layer and then expands upon heating to provide two layers spaced apart. Under this reading, in an emergency situation, a

rescue worker would come into a patient's room with a patient lying on the bed, make an adjustment to the underlay (with the patient on the bed) by heating the rescue underlay underneath the mattress, and after the single layer spacing fabric has expanded to form two layers spaced apart, proceed to move the patient along the floor and out the building. In a true emergency situation, this reading borders on the ridiculous where rescue workers do not have the luxury of time, where the building may be dark or may be compromised in some manner (e.g., flooding, on fire, or chemically or biologically contaminated) and where it is not feasible to make adjustments to an underlay under a mattress with a patient lying on the bed. A more likely reading, and the reading that the Examiner appears to be taking, is to take only a portion of the teachings from Böttger et al., and specifically, the portion of the spacing fabric where the spacing fabric is already two layers spaced apart, and combine only that portion with the teachings from Hemphill. To combine only this portion of the Böttger et al. reference impermissibly overlooks the reference as a whole.

According to the MPEP, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. See MPEP § 2142. Here, Hemphill teaches away from the combination of Hemphill and Böttger et al. because it suggests to use a relatively rigid support member. Böttger et al. teach away from the combination of Hemphill and Böttger et al. because it starts out as one layer and expands to form two layers spaced apart.

In some cases, a proper review of the prior art focuses on whether the prior art suggest the *desirability* of the combination. In the present application, not only do Hemphill and Böttger et al. teach away from the combination of the references, but they specifically state that a combination is not desirable for the reasons discussed above.

iv. The motivation to combine Hemphill and Böttger et al. would not come from a person skilled in the art of making beds because Böttger et al. is non-analogous art.

The motivation to combine Hemphill with Böttger et al. would not come from a person having ordinary skill in the art of making beds. Böttger et al. is not analogous prior art. A person of ordinary skill in the art of making beds would not look to the construction arts or to methods of reinforcement in construction in order to find materials that would be useful for rescue mats or provide spring travel. Böttger et al. appears to have been selected as prior art based on a full text word search informed by a reading of Appellant's specification and specifically that Appellant's claims include the words "spacer woven fabric" and Böttger et al. is entitled "spacer fabric". In order to rely on a reference as a basis for a rejection, the reference must be in applicant's field of endeavor or reasonably pertinent. MPEP §2141.01(a). This is not the case with Böttger et al. This is further exemplified by the fact that neither Hemphill nor Böttger et al. include a reference or teaching to the other (i.e., Böttger et al. does not reference the art of making beds and Hemphill does not reference the construction arts), making it even less likely that the motivation would have come from a person skilled in the art of making beds. Appellant recognizes that in the mechanical arts, it is reasonable to permit inquiry into other areas where one of ordinary skill in the art would be aware that similar problems exist. However, this is not the case here as a person skilled in the art of making beds would not look to construction reinforcement to solve the problem of spring travel in rescue mats.

v. The Final Rejection's assertion that the motivation to combine Hemphill and Böttger et al. would have been to enhance dimensional stability impermissibly uses hindsight to create a motivation to combine Hemphill and Böttger et al. where a motivation otherwise does not exist.

It is well established that an obviousness determination looks to what a person skilled in the art knew at the time of the invention and strongly discourages the use of hindsight. The mere fact that prior art references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See MPEP § 2143.11(III). According to page 5 of the Final Rejection, the motivation to combine Hemphill and Böttger et al. with respect to claims 16, 20 and 43-45 would have been to enhance the dimensional stability of the material. However, dimensional stability is not what the Appellant was setting out to improve. Rather, the Appellant was trying to improve the spring travel of a rescue mat. Page 2 of the Application states “[i]t is already known to provide a rescue underlay of the conventional kind with additional, cushioning support wedges, particularly at the head end, at the foot end and in the middle region, which are arranged under the mattress and are to prevent slipping of the patient on the mattress (WO 00/74785 A1). It has proved that the known rescue underlays for mattresses still present a need for improvement in handling.” In this case, Appellant believes that the Examiner looked at Appellant's invention, found two references, and created a motivation to combine the references in order to make the obviousness rejection, thereby impermissibly using hindsight to make the rejection.

vi. The combination of Hemphill and Böttger et al. does not suggest Appellant's invention with a reasonable expectation of success.

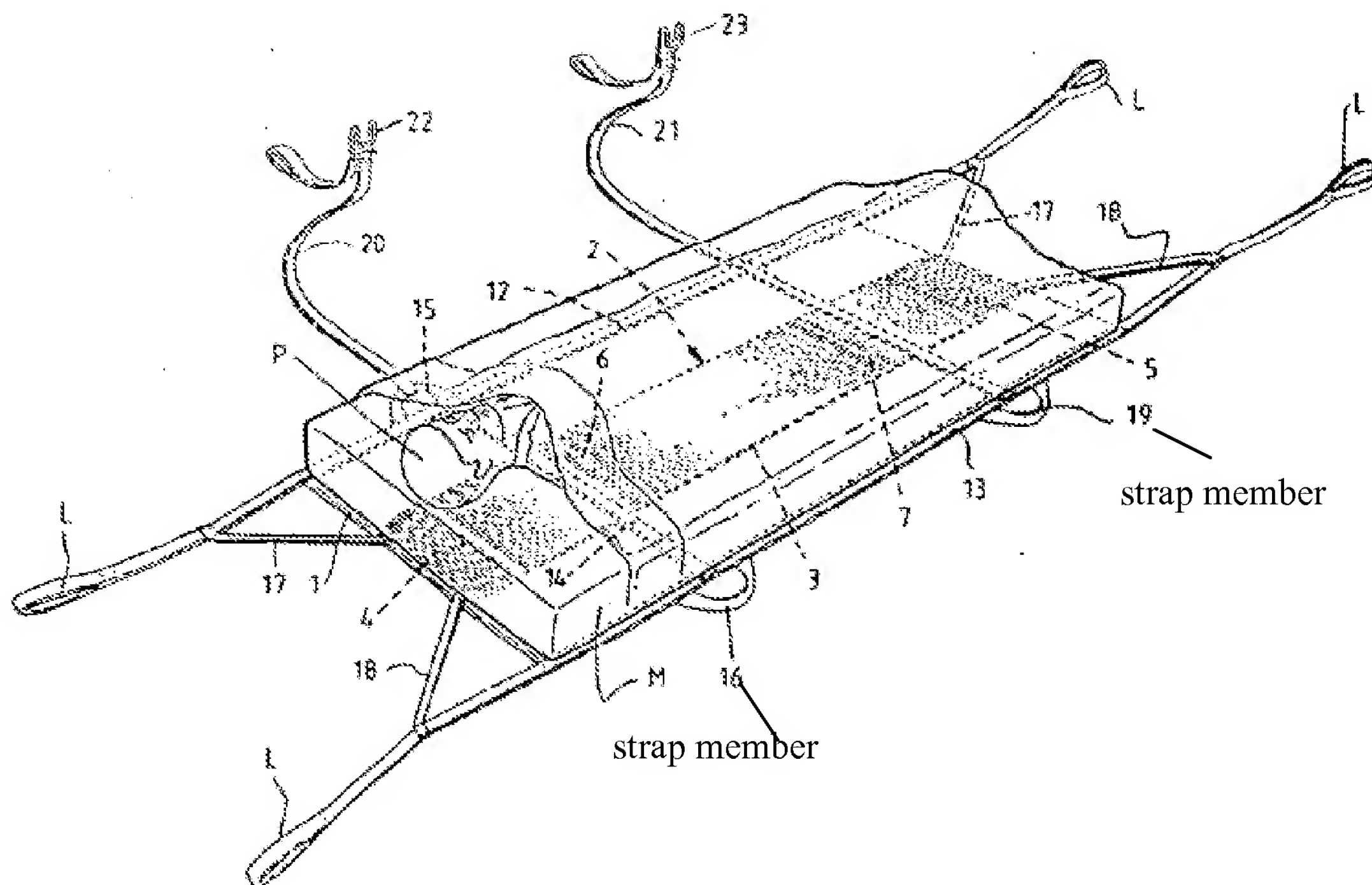
There is not a reasonable likelihood of success that the reinforcement fabric of Böttger et al. could be combined with the invention in Hemphill to create a rescue underlay for mattresses

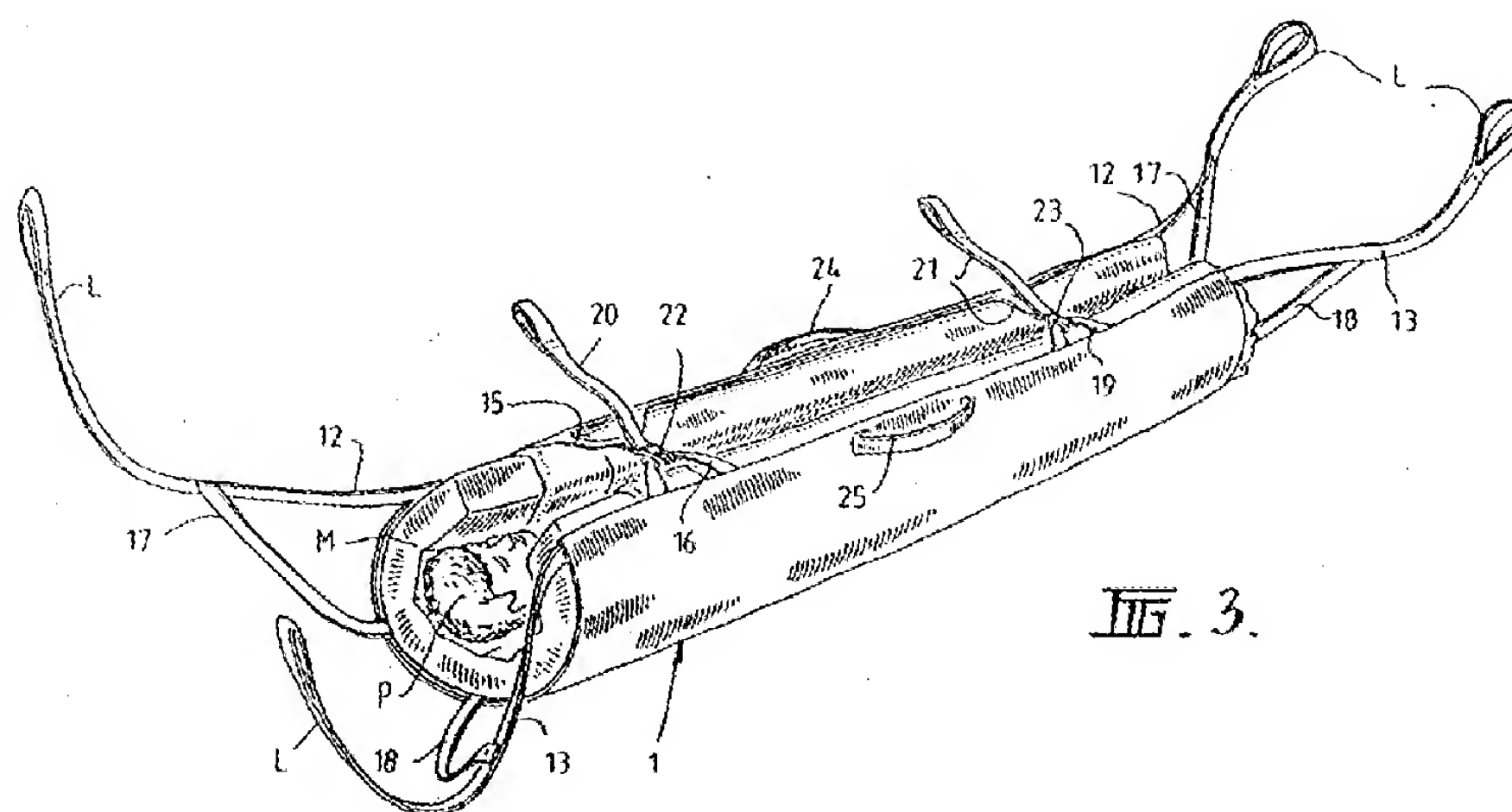
having spacer woven fabric. As discussed above, the spacer fabric in Böttger et al. starts out as two layers that touch and expand upon heating to form two layers spaced apart. Even if a person skilled in the art of making beds would look to Böttger et al. and the construction arts, a person skilled in the art could not reasonably expect the combination of Böttger et al. and Hemphill to succeed if the spacer fabric of Böttger et al. has to be heated to expand. As previously discussed, a fair reading of a combination of Hemphill and Böttger et al. would be the evacuation restraint of Hemphill with the spacing fabric of Böttger et al., where the spacing fabric starts out as one layer and then expands upon heating to provide two layers spaced apart. Under this reading, in an emergency situation, a rescue worker would come into a patient's room with a patient lying on the bed, make an adjustment to the underlay (with the patient on the bed) by heating the rescue underlay underneath the mattress, and after the single layer spacing fabric has expanded to form two layers spaced apart, proceed to move the patient along the floor and out the building. In a true emergency situation, this would not provide a successful rescue mat where rescue workers do not have the luxury of time, where the building may be dark or may be compromised in some manner (e.g., flooding, on fire, or chemically or biologically contaminated) and where it is not feasible to make adjustments to an underlay under a mattress with a patient lying on the bed.

Appellant requests that Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a). Appellant accordingly requests reversal of the rejection of claims 16, 18, 22-24, 26-27, 33 and 34-42 as being unpatentable over Hemphill in view of Böttger et al.

ARGUMENTS CONCERNING CLAIM 17

Regarding claim 17, Appellant incorporates by reference the above arguments and adds the following. Claim 17 depends from claim 16 and adds the element of a mattress retaining band. According to the Final Rejection, Hemphill teaches a mattress retaining band in Figure 1 shown as numbers 16 and 19. See Final Rejection paragraph 3, page 3. Appellant disagrees that Hemphill teaches a mattress retaining band. Hemphill teaches numbers 16 and 19 as strap members that work with numbers 20 and 21 to envelop a patient to be evacuated. See Hemphill column 1, lines 63-67.





In contrast, Appellant's mattress retaining band, shown as number 7 in Figure 1 of the invention, straps around the mattress to hold the mattress on the underlay.

Hemphill does not teach all of the elements of claim 17. The shortcomings of Hemphill are not remedied by Böttger et al. Accordingly, Appellant requests that Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a). Appellant accordingly requests reversal of the rejection of claim 17 as being unpatentable over Hemphill in view of Böttger et al.

ARGUMENTS CONCERNING CLAIM 20

Regarding claim 20, Appellant incorporates by reference the above arguments and adds the following. Claim 20 depends from claim 16 and adds the element that the spacer woven fabric is spacer knitted fabric. According to the Final Rejection, the Examiner has not given this limitation patentable weight because the manner of forming the woven material is not germane to patentability. See Final Rejection, paragraph 3, page 5. Appellant disagrees because there are structural characteristics of knitting the spacer fabric that make spacer knitted fabrics useful in

the present invention. As Appellant's specification points out "spacer knitted fabrics have textile outer surfaces of greater width of stitch link, the outer surfaces being connected by spacer threads and held at the desired distance." See Application at page 3, lines 1-3. An important part of Appellant's invention is the spacer woven fabric, therefore, Appellant believes that characteristics of the spacer woven fabric *are* important to patentability, contrary to the Final Rejection.

Accordingly, Appellant requests that Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a). Appellant also requests that the limitation in claim 20 be given patentable weight. Appellant accordingly requests reversal of the rejection of claim 20 as being unpatentable over Hemphill in view of Böttger et al.

ARGUMENTS CONCERNING CLAIM 21

Regarding claim 21, Appellant incorporates by reference the above arguments and adds the following. Claim 21 depends from claim 16 and adds the element that the spacer woven fabric is about 4 mm to about 20 mm thick. According to the Final Rejection, it would have been obvious to one of ordinary skill in the art to make the material between 4 mm and 20 mm thick since it has been held that discovering the optimum or workable ranges involves only routine skill in the art. See Final Rejection, paragraph 3, page 5. Appellant disagrees because the thickness of the spacer woven fabric is structurally important to the ability of the fabric to provide spring travel.

Accordingly, Appellant requests that Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a). Appellants also

requests reconsideration of the limitation in claim 21. Appellant accordingly requests reversal of the rejection of claim 21 as being unpatentable over Hemphill in view of Böttger et al.

ARGUMENTS CONCERNING CLAIM 28

Regarding claim 28, Appellant incorporates by reference the above arguments and adds the following. Claim 28 depends from claim 23 and adds the element that the coating on the underside of the underlay is washable. According to the Final Rejection, Hemphill teaches a coating on the underside of the underlay that is washable. See Final Rejection paragraph 3, page 3. However, Appellant does not see where this element is taught in Hemphill. Hemphill teaches a rectangular base sheet (1) made of polyester that has been treated to be fire resistant, water resistant, and relatively friction free. Appellant does not see washable in the list of attributes of the underlay coating.

Hemphill does not teach all of the elements of claim 28. The shortcomings of Hemphill are not remedied by Böttger et al. Accordingly, Appellant requests that Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a). Appellant requests reversal of the rejection of claim 28 as being unpatentable over Hemphill in view of Böttger et al.

ARGUMENTS CONCERNING CLAIM 30

Regarding claim 30, Appellant incorporates by reference the above arguments and adds the following. Claim 30 depends from claim 23 and adds the element that the coating on the underside of the underlay is readily disinfected. According to the Final Rejection, Hemphill teaches a coating on the underside of the underlay that is readily disinfected. See Final Rejection paragraph 3, page 3. However, Appellant does not see where this element is taught in Hemphill. Hemphill teaches a rectangular base sheet (1) made of polyester that has been treated to be fire

resistant, water resistant, and relatively friction free. Appellant does not see “readily disinfected” in the list of attributes of the underlay coating.

Hemphill does not teach all of the elements of claim 30. The shortcomings of Hemphill are not remedied by Böttger et al. Accordingly, Appellant requests that Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a). Appellant requests reversal of the rejection of claim 30 as being unpatentable over Hemphill in view of Böttger et al.

II. REJECTION OF CLAIM 25 UNDER 35 U.S.C. §103(A):

Regarding claim 25, Appellant incorporates by reference the above arguments and adds the following. Claim 25 depends from claim 24 and adds that the plastic film is polyurethane, polyester, or a combination. According to the Final Rejection, Hemphill in view of Böttger et al. discloses all of the limitations of claim 25 except for the plastic film being selected from the group consisting of polyurethane, polyester, and combinations thereof. See Final Rejection paragraph 4, page 6. The Final Rejection uses Failor to disclose a plastic film for use on a patient transfer mattress. Appellant disagrees that Failor, in combination with Hemphill and Böttger et al. render claim 25 obvious. Hemphill and Böttger et al. do not teach all of the elements of claim 25 for the reasons discussed above. Further, Failor does not remedy the shortcomings that Hemphill and Böttger et al. have in failing to render Appellant’s invention obvious. Failor is directed to a patient transfer mattress and states “a mattress assembly 10 is provided for facilitating the transfer of a patient from a first support, such as a stretcher, to a second support, such as an x-ray table. The assembly is designed so that such transfer can be accomplished in a manner which is safe for both the patient and the attending staff. It is also designed for use with most stretchers or carts, regardless of the manufacturer.” See Failor,

column 2, lines 38-45. Patient transfer is different from patient evacuation. Again, Appellant does not see in the references where a person skilled in the art of making beds would look to Failor. Appellant believes that the Examiner looked at Appellant's invention, found the references, and created a motivation to combine the references in order to make the obviousness rejection, thereby impermissibly using hindsight to make the rejection.

Appellant requests that Failor, Hemphill and Böttger et al. be read fairly, and not relied upon to make a proper obviousness rejection under 35 U.S.C. § 103(a) with respect to claim 25. Appellant accordingly requests reversal of the rejection of claim 25 as being unpatentable over Hemphill in view of Böttger et al and further in view of Failor.

III. REJECTION OF CLAIMS 31 AND 35-41 UNDER 35 U.S.C. § 103(A):

ARGUMENTS CONCERNING CLAIM 31

Regarding claim 31, Appellant incorporates by reference all of the above arguments and adds the following.

Claim 31 depends from claim 16 and further defines the braking surface. According to the Final Rejection, Hemphill and Böttger et al. disclose all of the features of claim 31 except for the underlay further comprising a braking surface wherein the braking surface exhibits a higher sliding friction than the material. See Final Rejection, paragraph 5, page 7. The Final Rejection states that "it would have been obvious to one having ordinary skill in the art at the time of invention to modify the device shown by Hemphill '487 and Böttger et al. '893 such that it would include a braking surface. The motivation would have been to restrict the mobility of the mattress on the underlay." See Final Rejection, paragraph 5, page 7. The Final Rejection does not provide an additional prior art reference to render the additional element in claim 31 obvious.

Appellant assumes that the Final Rejection is relying on the general knowledge of a person skilled in the art to make this rejection.

According to MPEP § 2144.03, in limited circumstances, it is appropriate for an examiner to take official notice of facts not in the record or to rely on “common knowledge” in making a rejection, however, such rejections should be judiciously applied. Official notice without documentary evidence to support an examiner’s conclusion is permissible only in some circumstances. While “official notice” may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge. See Zurko, 258 F.3d at 1386, 59 USPQ2d at 1697 (holding that general conclusions concerning what is “basic knowledge” or “common sense” to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

In the present invention, reliance on official notice or common knowledge in the art to support an obviousness rejection for the braking surface element in claim 31 is not appropriate. In this case, the Examiner acknowledges that the prior art of record does not teach the specific braking element of claim 31. Appellant does not believe that the use of a braking element on a rescue underlay having spacer woven fabric is so well-known in the art as to render this an appropriate circumstance for official notice or an obviousness rejection in light of common knowledge in the art.

Accordingly, Appellant requests reversal of the rejection of claim 31 as being unpatentable over Hemphill in view of Böttger et al. in light of unsupported common knowledge in the art. Alternatively, Appellant requests that the Examiner provide documentary evidence to support the obviousness of the braking element in claim 31.

ARGUMENTS CONCERNING CLAIMS 35-38

Regarding claims 35-38, Appellant incorporates by reference all of the above arguments and adds the following.

Claims 35-38 depend from claim 16 and claim 35 and describe the tunnel-like receptions of the underlay. According to the Final Rejection, Hemphill and Böttger et al. disclose all of the features of claims 35-38 except for the tunnel-like receptions. See Final Rejection, paragraph 5, page 7. The Final Rejection states that “it would have been obvious to one having ordinary skill in the art of beds at the time the invention was made to modify the device shown by Hemphill ‘487 and Böttger et al. ‘893 such that it would include tunnel-like receptions for the patient securing belts to protect the same against wear during use, and to permit movement and/or replacement of the belts.” See Final Rejection, paragraph 5, page 7. The Final Rejection does not state what the motivation would have been to do so, nor does the Final Rejection provide an additional prior art reference to render the additional element in claim 31 obvious. Appellant assumes that the Final Rejection is relying on the general knowledge of a person skilled in the art to make this rejection.

According to MPEP § 2144.03, in limited circumstances, it is appropriate for an examiner to take official notice of facts not in the record or to rely on “common knowledge” in making a rejection, as discussed above with respect to claim 31.

In the present invention, reliance on official notice or common knowledge in the art to support an obviousness rejection for the tunnel-like receptions in claims 35-38 is not appropriate. In this case, the Examiner acknowledges that the prior art of record does not teach the specific tunnel-like receptions of claims 35-38. Appellant does not believe that the use of tunnel-like receptions on a rescue underlay having spacer woven fabric is so well-known in the art as to render this an appropriate circumstance for official notice or an obviousness rejection in light of common knowledge in the art. Further, it is unclear to the Appellant what the motivation in the prior art is to add the tunnel-like receptions.

Accordingly, Appellant requests reversal of the rejection of claims 35-38 as being unpatentable over Hemphill in view of Böttger et al. in light of unsupported common knowledge in the art. Alternatively, Appellant requests that the Examiner provide documentary evidence to support the obviousness of the tunnel-like receptions in claims 35-38.

ARGUMENTS CONCERNING CLAIMS 39-41

Regarding claims 39-41, Appellant incorporates by reference all of the above arguments.

According to the Final Rejection, Hemphill and Böttger et al. disclose all of the elements of claim 39 except for the three patient securing belts. Also, according to the Final Rejection, Hemphill and Böttger et al. disclose all of the elements of claim 40 except for the underlay being permanently affixed to a mattress. Finally, according to the Final Rejection, Hemphill and Böttger et al. disclose all of the elements of claim 41 except for the underlay being incorporated into a mattress. See Final Rejection, paragraph 5, page 7. The Final Rejection states that with respect to claim 39, it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. The Final Rejection also states that with respect to claims

40 and 41, it has been held that forming one piece of an article which has formerly been formed in two pieces and put together involves only routine skill in the art.

Appellant disagrees that Hemphill and Böttger et al. render claims 39-41 obvious for the reasons already discussed above. Whether claims 39-41 involve mere duplication or forming one piece from something that was formerly two is immaterial in light of the fact that the prior art of record does not teach the elements of independent claim 16 that claims 39-41 depend from, namely a rescue underlay that has spacer woven fabric.

Accordingly, Appellant requests reversal of the rejection of claims 39-41 under 35 U.S.C. § 103(a) as being unpatentable over Hemphill in view of Böttger et al.

CONCLUSION

Appellants invention is directed to a rescue underlay having spacer woven fabric that provides spring travel.

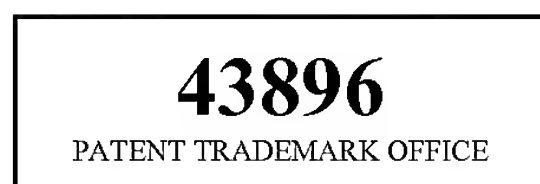
Hemphill does not teach the use of a rescue underlay having spacer woven fabric and in fact teaches away from such in that it describes a rescue underlay that provides a relatively rigid flat surface.

Böttger et al. does not teach the use of a rescue underlay having spacer woven fabric and in fact teaches away from such in that it describes a spacing fabric that starts out as one layer and expands upon heating to form two layers spaced apart.

No proper basis has been given for a person having ordinary skill in the art of making beds to combine Hemphill and Böttger et al. or to take the further step of adding Failor or the common knowledge in the art. Accordingly, the references should never have been combined in the manner set out in the Final Rejection.

Appellant accordingly requests that the 35 U.S.C. §103(a) rejection be reversed.

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers or any future reply, if appropriate. Please charge any additional fees or credit overpayment to Deposit Account No. 501257.



Respectfully submitted,

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Phone Number: (651) 795-5661
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Dated: October 12, 2006

By: /Anneliese S. Mayer/
Name: Anneliese S. Mayer
Reg. No. 54,434

CLAIMS APPENDIX

16. A rescue underlay for a mattress comprising:
 - a. a substantially flat material comprising spacer woven fabric having at least two layers spaced apart by bridge threads and providing spring travel, wherein the material is substantially the size of a mattress;
 - b. at least one pull member; and
 - c. at least one patient securing belt.
17. The underlay of claim 16, further comprising at least one mattress retaining band.
18. The underlay of claim 16, wherein the material comprises plastic.
20. The underlay of claim 16, wherein the spacer woven fabric is a spacer knitted fabric.
21. The underlay of claim 16, wherein the spacer woven fabric has a thickness from about 4 mm to about 20 mm.
22. The underlay of claim 16, wherein the material is selected from the group consisting of flame resistant material, fire-resistant material, non-decaying material, non-hygroscopic material, polyester material, polyamide material, aramide material, glass fiber material, saran material, or combination thereof.
23. The underlay of claim 16, wherein the material further comprises a coating on the underside.
24. The underlay of claim 23, wherein the coating is a plastic film.
25. The underlay of claim 24, wherein the plastic film is selected from the group consisting of polyurethane, polyester, and combination thereof.
26. The underlay of claim 24, wherein the plastic film exhibits a lower sliding friction than the material.

27. The underlay of claim 23, wherein the coating is water-impermeable.
28. The underlay of claim 23, wherein the coating is washable.
29. The underlay of claim 23, wherein the coating is air-permeable.
30. The underlay of claim 23, wherein the coating is readily disinfected.
31. The underlay of claim 16, wherein the material further comprises a braking surface, wherein the braking surface exhibits a higher sliding friction than the material.
32. The underlay of claim 23, wherein the coating further comprises a braking surface, wherein the braking surface exhibits a higher sliding friction than the coating.
33. The underlay of claim 23, wherein the material comprises a plurality of layers of substantially flat material fixedly attached to each other.
34. The underlay of claim 16, wherein the patient securing belt is attached to the underlay mat by an attachment selected from the group consisting of sewing and hook and loop connections.
35. The underlay of claim 16, wherein the underlay further comprises tunnel-like receptions for accommodating the patient securing belt when the patient securing belt is not in use.
36. The underlay of claim 35, wherein the tunnel-like receptions are positioned substantially transversely to the underlay.
37. The underlay of claim 35, wherein the tunnel-like receptions are sewed onto the underlay.
38. The underlay of claim 35, wherein the tunnel-like receptions are located on the underside of the underlay.
39. The underlay of claim 16, wherein the underlay has three patient securing belts.
40. The underlay of claim 16, wherein the underlay is permanently affixed to a mattress.
41. The underlay of claim 16, wherein the underlay is integrated into a mattress.

42. The underlay of claim 16, wherein the pull member is a loop.
43. A rescue underlay for a mattress comprising:
- a. a substantially flat material comprising spacer woven fabric having at least two layers spaced apart by bridge threads and providing spring travel, wherein the material is substantially the size of a mattress;
 - b. at least one pull loop; and
 - c. at least one patient securing belt.
44. A rescue underlay for a mattress comprising:
- a. a substantially flat plastic material comprising spacer woven fabric having at least two layers spaced apart by bridge threads and providing spring travel, wherein the material is substantially the size of a mattress;
 - b. at least one pull loop; and
 - c. at least one patient securing belt.
45. A method of moving a patient comprising:
- a. providing a patient reclining on a rescue underlay for a mattress; and
 - b. moving the patient from a first location to a second location, wherein the underlay comprises
 - i. a substantially flat material comprising spacer woven fabric having at least two layers spaced apart by bridge threads and providing spring travel, wherein the material is substantially the size of a mattress;
 - ii. at least one pull member; and
 - iii. at least one patient securing belt;

wherein the patient can be moved by one person pulling the patient on the rescue underlay.

EVIDENCE APPENDIX

1. 35 USC §103(a)
2. Final Rejection of USSN 10/649,152
3. MPEP §2141
4. MPEP §2141.01(a)
5. MPEP §2142
6. MPEP §2143.01(III)
7. MPEP §2144.03
8. MPEP §2145
9. MPEP §707.07(i)
10. U.S. 5,150,487 (Hemphill)
11. U.S. 5,582,893 (Böttger et al.)
12. U.S. 5,860,174 (Failor)
13. U.S. Patent Application SN 10/649,152, for a “Rescue Underlay for Mattress”.
14. www.surgeongeneral.gov/topics/obesity/calltoaction/fact_glance.htm
15. Zurko, 258 F3d at 1386, 59 USPQ2d at 1697

RELATED PROCEEDINGS APPENDIX

None.

35 U.S.C. 102 Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language; or

(f) he did not himself invent the subject matter sought to be patented, or

(g)(1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to prac-

tice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

(Amended July 28, 1972, Public Law 92-358, sec. 2, 86 Stat. 501; Nov. 14, 1975, Public Law 94-131, sec. 5, 89 Stat. 691.)

(Subsection (e) amended Nov. 29, 1999, Public Law 106-113, sec. 1000(a)(9), 113 Stat. 1501A-565 (S. 1948 sec. 4505).)

(Subsection (g) amended Nov. 29, 1999, Public Law 106-113, sec. 1000(a)(9), 113 Stat. 1501A-590 (S. 1948 sec. 4806).)

(Subsection (e) amended Nov. 2, 2002, Public Law 107-273, sec. 13205, 116 Stat. 1903.)

35 U.S.C. 103 Conditions for patentability; non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(b)(1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious if-

(A) claims to the process and the composition of matter are contained in either the same application for patent or in separate applications having the same effective filing date; and

(B) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.

(2) A patent issued on a process under paragraph (1)-

(A) shall also contain the claims to the composition of matter used in or made by that process, or



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,152	08/27/2003	Harald Post	1810US01-EE	5019
43896	7590	03/03/2006	EXAMINER	
ECOLAB INC. MAIL STOP ESC-F7, 655 LONE OAK DRIVE EAGAN, MN 55121			MAYO, TARA L	
			ART UNIT	PAPER NUMBER
			3671	

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/649,152	Applicant(s) POST, HARALD	
	Examiner Tara L. Mayo	Art Unit 3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION:

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/14/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Specification***

1. The disclosure is objected to because of the following informalities: reference to claim numbers. Delete the reference to claim numbers throughout the Specification and insert therefor the desired language. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 16 through 18, 20 through 24, 26 through 28, 30, 33, 34, and 42 through 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hemphill (U.S. Patent No. 5,150,487A) in view of Böttger et al. (U.S. Patent No. 5,582,893).

Hemphill '487, as seen in Figures 1 through 3, discloses a rescue underlay for a mattress comprising:

with regard to claims 16 and 43 through 45,

a. a substantially flat material (1, 2), wherein the material is substantially the size of a mattress and provides spring travel (via corrugations 3);

b. at least one pull member (L); and

c. at least one patient securing belt (20 and 21);

Art Unit: 3671

with regard to claim 17,

further comprising at least one mattress retaining band (16 and 19);

with regard to claim 18,

wherein the material comprises plastic (col. 2, lines 48-54);

with regard to claim 22,

wherein the material is fire-resistant (col. 2, lines 48 through 54);

with regard to claim 23,

wherein the material further comprises a coating on the underside (col. 2, lines 48 through 54);

with regard to claim 24,

wherein the coating is a plastic film (i.e., Teflon);

with regard to claim 26,

wherein the plastic film exhibits a lower sliding friction than the material;

with regard to claim 27,

wherein the coating is water-impermeable;

with regard to claim 28,

wherein the coating is washable;

with regard to claim 30,

wherein the coating is readily disinfected,

with regard to claim 33,

wherein the material comprises a plurality of layers (1 and 2) of substantially flat material fixedly attached to each other (col. 2, lines 54 through 56);

with regard to claim 34,

Art Unit: 3671

wherein the at least one patient securing belt is attached to the underlay mat by sewing (col. 3, lines 12 through 16);

with regard to claim 42,

wherein the at least one pull member is loop; and

with regard to claims 43 and 44,

wherein the material provides spring travel (via corrugations 3).

With regard to claim 45, the method steps recited therein are inherent to the use of the device disclosed by Hemphill '487.

Hemphill '487 discloses all of the features of the claimed invention with the exception(s) of:

with regard to claims 16 and 43 through 45,

the material being a spacer woven fabric having at least two layers spaced by bridge threads;

with regard to claim 20,

the spacer woven fabric being knitted; and

with regard to claim 21,

the spacer woven fabric having a thickness from about 4mm to about 20 mm.

Böttger et al. '893, as seen in Figures 1 through 1b, teach a woven spacing fabric (3) with at least two layers (4, 5) and bridge threads (7) for adding dimensional stability to a workpiece (col. 2, lines 20 through 52).

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With regard to claims 16, 20 and 43 through 45, it would have been obvious to one having ordinary skill in the art of beds at the time of invention to modify the device shown by Hemphill '487 such that the flat material would comprise woven material as taught by Böttger et al. '893. The motivation would have been to enhance the dimensional stability of the material.

With regard to claim 20, the manner of forming the woven material (i.e., by knitting) is not germane to the issue of patentability of the device itself. Therefore, the limitation has not been given patentable weight.

With regard to claim 21, Hemphill '487 in view of Böttger et al. '893 discloses the invention except for the thickness of the woven fabric. It would have been obvious to one having ordinary skill in the art of beds at the time the invention was made to make the material between 4mm and 20mm thick, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hemphill (U.S. Patent No. 5,150,487A) in view of Böttger et al. (U.S. Patent No. 5,582,893) as applied to claim 24 above, and further in view of Failor (U.S. Patent No. 5,860,174A).

Hemphill '487 as modified above by Böttger et al. '893 discloses all of the features of the claimed invention with the exception(s) of:

with regard to claim 25,

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the plastic film being selected from the group consisting of polyurethane, polyester, and combinations thereof.

Failor '174, as seen in Figures 2 and 4, discloses a patient transfer mattress assembly (10) comprising a top mattress section (12) having a bottom surface (12B), wherein the bottom surface comprises a fluoropolymer film (i.e., Teflon) combined with a polyester fabric substrate (col. 2, line 64 through col. 3, line 5) for low friction, chemical and flame resistance, and barrier properties.

With regard to claim 25, it would have been obvious to one having ordinary skill in the art of beds at the time of invention to modify the device shown by the combination of Hemphill '487 and Böttger et al. '893 such that it would include a plastic film as taught by Failor '174. The motivation would have been to enhance the barrier properties of the coating.

5. Claims 31 and 35 through 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hemphill (U.S. Patent No. 5,150,487A) in view of Böttger et al. (U.S. Patent No. 5,582,893).

The combination of Hemphill '487 and Böttger et al. '893 discloses all of the features of the claimed invention with the exception(s) of:
with regard to claim 31,

the material further comprising a braking surface exhibiting a higher sliding friction than the material;

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with regard to claims 35 through 38,

tunnel-like receptions;

with regard to claim 39,

three patient securing belts;

with regard to claim 40,

the underlay being permanently affixed to a mattress; and

with regard to claim 41,

the underlay being integrated into a mattress.

With regard to claim 31, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the device shown by Hemphill '487 and Böttger et al. '893 such that it would include a braking surface. The motivation would have been to restrict the mobility of the mattress on the underlay.

With regard to claims 35 through 38, it would have been obvious to one having ordinary skill in the art of beds at the time the invention was made to modify the device shown by Hemphill '487 and Böttger et al. '893 such that it would include tunnel-like receptions for the patient securing belts to protect the same against wear during use, and to permit movement and/or replacement of the belts.

With regard to claim 39, the combination of Hemphill '487 and Böttger et al. '893 discloses the claimed invention except for three patient securing belts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include an additional patient securing belt, since it has been held that mere duplication of

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the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

With regard to claims 40 and 41, the combination of Hemphill '487 and Böttger et al. '893 discloses the claimed invention except for the underlay being permanently affixed to or integrated into a mattress. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the underlay integral with a mattress, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. In re Lindber, 93 USPQ 23 (CCPA 1952).

Response to Arguments

6. Applicant's arguments filed 14 December 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the spacer fabric taught by Böttger et al. '893 would replace the material layer (1) of Hemphill '487 for the reasons set forth in the above Office action.

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Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara L. Mayo whose telephone number is 571-272-6992. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

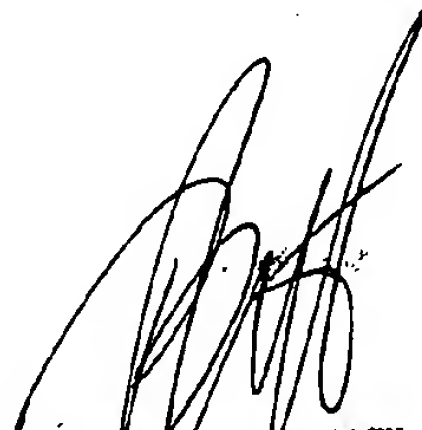
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 571-272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


tim

25 February 2006


Thomas B. Will
Supervisory Patent Examiner
Group 3600


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2141 35 U.S.C. 103; the Graham Factual Inquiries [R-3] - 2100 Patentability

2141 35 U.S.C. 103; the Graham Factual Inquiries [R-3]

35 U.S.C. 103 Conditions for patentability; non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in **section 102** of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(b)

(1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under **section 102** and nonobvious under subsection (a) of this section shall be considered nonobvious if-

(A) claims to the process and the composition of matter are contained in either the same application for patent or in separate applications having the same effective filing date; and

(B) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.

(2) A patent issued on a process under paragraph (1)-

(A) shall also contain the claims to the composition of matter used in or made by that process, or

(B) shall, if such composition of matter is claimed in another patent, be set to expire on the same date as such other patent, notwithstanding **section 154**.

(3) For purposes of paragraph (1), the term "biotechnological process" means-

(A) a process of genetically altering or otherwise inducing a single- or multi-celled organism to-

(i) express an exogenous nucleotide sequence,

(ii) inhibit, eliminate, augment, or alter expression of an endogenous nucleotide sequence, or

(iii) express a specific physiological characteristic not naturally associated with said organism;

(B) cell fusion procedures yielding a cell line that expresses a specific protein, such as a monoclonal antibody; and

(C) a method of using a product produced by a process defined by subparagraph (A) or (B), or a combination of subparagraphs (A) and (B).

**>

(c)

(1) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of **section 102** of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

(2) For purposes of this subsection, subject matter developed by another person and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person if -

(A) the claimed invention was made by or on behalf of parties to a joint research agreement that was in effect on or before the date the claimed invention was made;

(B) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and

(C) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.

(3) For purposes of paragraph (2), the term "joint research agreement" means a written contract, grant, or cooperative agreement entered into by two or more persons or entities for the performance of experimental, developmental, or research work in the field of the claimed invention.<

>

I. < STANDARD OF PATENTABILITY TO BE APPLIED IN OBVIOUSNESS REJECTIONS

Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case. The Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. . .

This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act.

Office policy is to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under **35 U.S.C. 103**. As quoted above, the four factual inquiries enunciated therein as a background for determining obviousness are as follows:

- (A) Determining the scope and contents of the prior art;
- (B) Ascertaining the differences between the prior art and the claims in issue;
- (C) Resolving the level of ordinary skill in the pertinent art; and
- (D) Evaluating evidence of secondary considerations.

The Supreme Court reaffirmed and relied upon the *Graham* three pronged test in its consideration and determination of obviousness in the fact situations presented in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 189 USPQ 449, *reh'g denied*, 426 U.S. 955 (1976) and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 163 USPQ 673 (1969). In each case, the Court discussed whether the claimed combinations produced a "new or different function" and a "synergistic result," but it clearly decided whether the claimed inventions were nonobviousness on the basis of the three-way test in *Graham*. Nowhere in its decisions in these cases does the Court state that the "new or different function" and "synergistic result" tests supersede a finding of nonobvious or obviousness under the *Graham* test.

Accordingly, examiners should apply the test for patentability under **35 U.S.C. 103**

set forth in *Graham*. See below for a detailed discussion of each of the *Graham* factual inquiries. It should be noted that the Supreme Court's application of the *Graham* test to the fact circumstances in *Ag Pro* was somewhat stringent, as it was in *Black Rock*. Note *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963, 200 USPQ 769 (7th Cir. 1979). The Court of Appeals for the Federal Circuit stated in *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540, 218 USPQ 871, 880 (Fed. Cir. 1983) that

A requirement for "synergism" or a "synergistic effect" is nowhere found in the statute, 35 U.S.C. When present, for example in a chemical case, synergism may point toward nonobviousness, but its absence has no place in evaluating the evidence on obviousness. The more objective findings suggested in *Graham*, supra, are drawn from the language of the statute and are fully adequate guides for evaluating the evidence relating to compliance with 35 U.S.C. § 103. *Bowser Inc. v. United States*, 388 F. 2d 346, 156 USPQ 406 (Ct. Cl. 1967).

>

II. < BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

>







III. < OBJECTIVE EVIDENCE MUST BE CONSIDERED

Objective evidence or secondary considerations such as unexpected results, commercial success, long-felt need, failure of others, copying by others, licensing, and skepticism of experts are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the examiner must evaluate the evidence. The weight to be accorded to the evidence depends on the individual factual circumstances of each case. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987). The

ultimate determination on patentability is made on the entire record. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). >However, evidence developed after the patent grant in response to challenge to the patent validity's should not be excluded from consideration since "understanding the full range of the invention is not always achieved at the time of filing the patent application." *Knoll Pharms. Co., Inc. v. Teva Pharms. USA Inc.*, 367 F.3d 1381, 1385, 70 USPQ2d 1957, 1960 (Fed. Cir. 2004). (reversing the lower court's grant of summary judgment of invalidity for failure to consider 'unexpected results' evidence obtained from post-filing that could be relevant to the patent validity inquiry).<

See **MPEP § 716 - § 716.06** for a discussion of objective evidence and its role in the final legal determination of whether a claimed invention would have been obvious under **35 U.S.C. 103**.

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2141.01(a) Analogous and Nonanalogous Art [R-3] - 2100 Patentability

2141.01(a) Analogous and Nonanalogous Art [R-3]

>

I. < TO RELY ON A REFERENCE UNDER 35 U.S.C. 103, IT MUST BE ANALOGOUS PRIOR ART

The examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993); and *State Contracting & Eng'g Corp. v. Condotte America, Inc.*, 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) (where the general scope of a reference is outside the pertinent field of endeavor, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved).

>

II. < PTO CLASSIFICATION IS SOME EVIDENCE OF ANALOGY, BUT SIMILARITIES AND DIFFERENCES IN STRUCTURE AND FUNCTION CARRY MORE WEIGHT

While Patent Office classification of references and the cross-references in the official search notes of the class definitions are some evidence of "nonanalogy" or "analogy" respectively, the court has found "the similarities and differences in structure and function of the inventions to carry far greater weight." *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973) (The structural similarities and functional overlap between the structural gratings shown by one reference and the

shoe scrapers of the type shown by another reference were readily apparent, and therefore the arts to which the reference patents belonged were reasonably pertinent to the art with which appellant's invention dealt (pedestrian floor gratings.); *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992) (Claims were directed to a process for storing a refined liquid hydrocarbon product in a storage tank having a dead volume between the tank bottom and its outlet port wherein a gelled solution filled the tank's dead volume to prevent loss of stored product while preventing contamination. One of the references relied upon disclosed a process for reducing the permeability of natural underground hydrocarbon bearing formations using a gel similar to that of applicant to improve oil production. The court disagreed with the PTO's argument that the reference and claimed inventions were part of the same endeavor, "maximizing withdrawal of petroleum stored in petroleum reserves," and found that the inventions involved different fields of endeavor since the reference taught the use of the gel in a different structure for a different purpose under different temperature and pressure conditions, and since the application related to storage of liquid hydrocarbons rather than extraction of crude petroleum. The court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies.).

>

III. < ANALOGY IN THE CHEMICAL ARTS

See, for example, *Ex parte Bland*, 3 USPQ2d 1103 (Bd. Pat App. & Inter. 1986) (Claims were drawn to a particulate composition useful as a preservative for an animal foodstuff (or a method of inhibiting fungus growth in an animal foodstuff therewith) comprising verxite having absorbed thereon propionic acid. All references were concerned with absorbing biologically active materials on carriers, and therefore the teachings in each of the various references would have been pertinent to the problems in the other references and the invention at hand.); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) (Problem confronting inventor was preventing electrostatic buildup in PTFE tubing caused by hydrocarbon fuel flow while precluding leakage of fuel. Two prior art references relied upon were in the rubber hose art, both referencing the problem of electrostatic buildup caused by fuel flow. The court found that because PTFE and rubber are used by the same hose manufacturers and experience the same and similar problems, a solution found for a problem experienced with either PTFE or rubber hosing would be looked to when facing a problem with the other.); *In re Mlot-Fijalkowski*, 676 F.2d 666, 213 USPQ 713 (CCPA 1982) (Problem faced by appellant was enhancement and immobilization of dye penetrant indications. References which taught the use of dyes and finely divided developer materials to produce colored images preferably in, but not limited to, the duplicating paper art were properly relied upon because the court found that appellant's problem was one of dye chemistry, and a search for its solution would include the dye arts in general.).

>

IV. < ANALOGY IN THE MECHANICAL ARTS

See, for example, *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992) (Applicant claimed an improvement in a hose clamp which differed from the prior art in the presence of a preassembly "hook" which maintained the preassembly condition of the clamp and disengaged automatically when the clamp was tightened. The Board relied upon a reference which disclosed a hook and eye fastener for use in garments, reasoning that all hooking problems are analogous. The court held the reference was not within the field of applicant's endeavor, and was not reasonably pertinent to the particular problem with which the inventor was concerned because it had not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated to look to fasteners for garments. The Commissioner further argued in the brief on appeal that a disengageable catch is a common everyday mechanical concept, however the court held that the Commissioner did not explain why a "catch" of unstated structure is such a concept, and why it would have made the claimed invention obvious.). Compare *Stevenson v. International Trade Comm.*, 612 F.2d 546, 550, 204 USPQ 276, 280 (CCPA 1979) ("In a simple mechanical invention a broad spectrum of prior art must be explored and it is reasonable to permit inquiry into other areas where one of ordinary skill in the art would be aware that similar problems exist."). >See also *In re Bigio*, 381 F.3d 1320, 1325-26, 72 USPQ2d 1209, 1211-12 (Fed. Cir. 2004). The patent application claimed a "hair brush" having a specific bristle configuration. The Board affirmed the examiner's rejection of the claims as being obvious in view of prior art patents disclosing toothbrushes. 381 F.3d at 1323, 72 USPQ2d at 1210. The applicant disputed that the patent references constituted analogous art. On appeal, the court upheld the Board's interpretation of the claim term "hair brush" to encompass any brush that may be used for any bodily hair, including facial hair. 381 F.3d at 1323-24, 72 USPQ2d at 1211. With this claim interpretation, the court applied the "field of endeavor test" for analogous art and determined that the references were within the field of applicant's endeavor and hence was analogous art because toothbrushes are structurally similar to small brushes for hair, and a toothbrush could be used to brush facial hair. 381 F.3d at 1326, 72 USPQ2d at 1212.<

Also see *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986) (Applicant's claims related to double-acting high pressure gas transmission line compressors in which the valves could be removed easily for replacement. The Board relied upon references which taught either a double-acting piston pump or a double-acting piston compressor. The court agreed that since the cited pumps and compressors have essentially the same function and structure, the field of endeavor includes both types of double-action piston devices for moving fluids.); *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 227 USPQ 766 (Fed. Cir. 1985) (Claims at issue were directed to an instrument marker pen body, the improvement comprising a pen arm holding means having an integrally molded hinged member for folding over against the pen body. Although the patent owners argued the hinge and fastener art was nonanalogous, the court held that the problem confronting the inventor was the need for a simple holding means to enable frequent, secure attachment and easy removal of a marker pen to and from a pen arm, and one skilled in the pen art trying to solve that problem would have looked to the fastener and hinge art.); and *Ex parte Goodyear Tire & Rubber Co.*, 230 USPQ 357 (Bd.

Pat. App. & Inter. 1985) (A reference in the clutch art was held reasonably pertinent to the friction problem faced by applicant, whose claims were directed to a braking material, because brakes and clutches utilize interfacing materials to accomplish their respective purposes.).

>

V. < ANALOGY IN THE ELECTRICAL ARTS

See, for example, *Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993) (Patent claims were directed to single in-line memory modules (SIMMs) for installation on a printed circuit motherboard for use in personal computers. Reference to a SIMM for an industrial controller was not necessarily in the same field of endeavor as the claimed subject matter merely because it related to memories. Reference was found to be in a different field of endeavor because it involved memory circuits in which modules of varying sizes may be added or replaced, whereas the claimed invention involved compact modular memories. Furthermore, since memory modules of the claims at issue were intended for personal computers and used dynamic random-access-memories, whereas reference SIMM was developed for use in large industrial machine controllers and only taught the use of static random-access-memories or read-only-memories, the finding that the reference was nonanalogous was supported by substantial evidence.); *Medtronic, Inc. v. Cardiac Pacemakers*, 721 F.2d 1563, 220 USPQ 97 (Fed. Cir. 1983) (Patent claims were drawn to a cardiac pacemaker which comprised, among other components, a runaway inhibitor means for preventing a pacemaker malfunction from causing pulses to be applied at too high a frequency rate. Two references disclosed circuits used in high power, high frequency devices which inhibited the runaway of pulses from a pulse source. The court held that one of ordinary skill in the pacemaker designer art faced with a rate-limiting problem would look to the solutions of others faced with rate limiting problems, and therefore the references were in an analogous art.).

>

VI. < EXAMPLES OF ANALOGY IN THE DESIGN ARTS

See **MPEP § 1504.03** for a discussion of the relevant case law setting forth the general requirements for analogous art in design applications.

For examples of analogy in the design arts, see *In re Rosen*, 673 F.2d 388, 213 USPQ 347 (CCPA 1982) (The design at issue was a coffee table of contemporary styling. The court held designs of contemporary furniture other than coffee tables, such as the desk and circular glass table top designs of the references relied upon, would reasonably fall within the scope of the knowledge of the designer of ordinary skill.); *Ex parte Pappas*, 23 USPQ2d 1636 (Bd. Pat. App. & Inter. 1992) (At issue was an ornamental design for a feed bunk with an inclined corner configuration. Examiner relied upon references to a bunk lacking the inclined corners claimed by appellant and the *Architectural Precast Concrete Drafting Handbook*. The Board found the *Architectural Precast Concrete Drafting Handbook* was analogous art, noting that a bunk may be a wood or concrete trough, and that both references

relied upon "disclose structures in which at least one upstanding leg is generally perpendicular to a base portion to define a corner configuration between the leg and base portion."); *In re Butera*, 1 F.3d 1252, 28 USPQ2d 1399 (Fed. Cir. 1993) (unpublished - not citable as precedent) (The claimed invention, a spherical design for a combined insect repellent and air freshener, was rejected by the Board as obvious over a single reference to a design for a metal ball anode. The court reversed, holding the reference design to be nonanalogous art. "A prior design is of the type claimed if it has the same general use as that claimed in the design patent application One designing a combined insect repellent and air freshener would therefore not have reason to know of or look to a design for a metal ball anode." 28 USPQ2d at 1400.).

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2142 Legal Concept of - 2100 Patentability

2142 Legal Concept of *Prima Facie* Obviousness

The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward with production of evidence in each step of the examination process. See *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Saunders*, 444 F.2d 599, 170 USPQ 213 (CCPA 1971); *In re Tiffin*, 443 F.2d 394, 170 USPQ 88 (CCPA 1971), *amended*, 448 F.2d 791, 171 USPQ 294 (CCPA 1971); *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. If, however, the examiner does produce a *prima facie* case, the burden of coming forward with evidence or arguments shifts to the applicant who may submit additional evidence of nonobviousness, such as comparative test data showing that the claimed invention possesses improved properties not expected by the prior art. The initial evaluation of *prima facie* obviousness thus relieves both the examiner and applicant from evaluating evidence beyond the prior art and the evidence in the specification as filed until the art has been shown to suggest the claimed invention.

To reach a proper determination under **35 U.S.C. 103**, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See **MPEP § 2143 - § 2143.03** for decisions pertinent to each of these criteria.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See **MPEP § 2144 - § 2144.09** for examples of reasoning supporting obviousness rejections.

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). A statement of a rejection that includes a large number of rejections must explain with reasonable specificity at least one rejection, otherwise the examiner procedurally fails to establish a *prima facie* case of obviousness. *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Rejection based on nine references which included at least 40 prior art rejections without explaining any one rejection with reasonable specificity was reversed as procedurally failing to establish a *prima facie* case of obviousness.).







If the examiner determines there is factual support for rejecting the claimed invention under **35 U.S.C. 103**, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under **35 U.S.C. 103**, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.

When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner

and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

See *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984) for a discussion of the proper roles of the examiner's *prima facie* case and applicant's rebuttal evidence in the final determination of obviousness. See **MPEP § 706.02(j)** for a discussion of the proper contents of a rejection under **35 U.S.C. 103**.

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III. < FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).



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2144.03 Reliance on Common Knowledge in the Art or "Well Known" Prior Art [R-1] - 2100 Patentability

2144.03 Reliance on Common Knowledge in the Art or "Well Known" Prior Art [R-1]

****>**In limited circumstances, it is appropriate for an examiner to take official notice of facts not in the record or to rely on "common knowledge" in making a rejection, however such rejections should be judiciously applied.

PROCEDURE FOR RELYING ON COMMON KNOWLEDGE OR TAKING OFFICIAL NOTICE

The standard of review applied to findings of fact is the "substantial evidence" standard under the Administrative Procedure Act (APA). See *In re Gartside*, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000). See also MPEP § 1216.01. In light of recent Federal Circuit decisions as discussed below and the substantial evidence standard of review now applied to USPTO Board decisions, the following guidance is provided in order to assist the examiners in determining when it is appropriate to take official notice of facts without supporting documentary evidence or to rely on common knowledge in the art in making a rejection, and if such official notice is taken, what evidence is necessary to support the examiner's conclusion of common knowledge in the art.

A. Determine When It Is Appropriate To Take Official Notice Without Documentary Evidence To Support The Examiner's Conclusion

Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that "it is old to adjust intensity of a flame in accordance

with the heat requirement." See also *In re Fox*, 471 F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973) (the court took "judicial notice of the fact that tape recorders commonly erase tape automatically when new 'audio information' is recorded on a tape which already has a recording on it"). In appropriate circumstances, it might not be unreasonable to take official notice of the fact that it is desirable to make something faster, cheaper, better, or stronger without the specific support of documentary evidence. Furthermore, it might not be unreasonable for the examiner in a first Office action to take official notice of facts by asserting that certain limitations in a dependent claim are old and well known expedients in the art without the support of documentary evidence provided the facts so noticed are of notorious character and serve only to "fill in the gaps" which might exist in the evidentiary showing made by the examiner to support a particular ground of rejection. *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001); *Ahlert*, 424 F.2d at 1092, 165 USPQ at 421.

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979) ("[W]hen the PTO seeks to rely upon a chemical theory, in establishing a prima facie case of obviousness, it must provide evidentiary support for the existence and meaning of that theory."); *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("[W]e reject the notion that judicial or administrative notice may be taken of the state of the art. The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of such notice.").

It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 ("[T]he Board cannot simply reach conclusions based on its own understanding or experience-or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). While the court explained that, "as an administrative tribunal the Board clearly has expertise in the subject matter over which it exercises jurisdiction," it made clear that such "expertise may provide sufficient support for conclusions [only] as to peripheral issues." *Id.* at 1385-86, 59 USPQ2d at 1697. As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support. *Id.* at 1385, 59 USPQ2d at 1697. See also *In re Lee*, 277 F.3d 1338, 1344-45, 61 USPQ2d 1430, 1434-35 (Fed. Cir. 2002) (In reversing the Board's decision, the court stated "'common knowledge and common sense' on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation..The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.").

B. If Official Notice Is Taken of a Fact, Unsupported by Documentary Evidence, the Technical Line Of Reasoning Underlying a Decision To Take Such Notice Must Be Clear and Unmistakable

Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge. See *Lee*, 277 F.3d at 1344-45, 61 USPQ2d at 1434-35 (Fed. Cir. 2002); *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 (holding that general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection). In certain older cases, official notice has been taken of a fact that is asserted to be "common knowledge" without specific reliance on documentary evidence where the fact noticed was readily verifiable, such as when other references of record supported the noticed fact, or where there was nothing of record to contradict it. See *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963) (accepting the examiner's assertion that the use of "a control is standard procedure throughout the entire field of bacteriology" because it was readily verifiable and disclosed in references of record not cited by the Office); *In re Chevenard*, 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943) (accepting the examiner's finding that a brief heating at a higher temperature was the equivalent of a longer heating at a lower temperature where there was nothing in the record to indicate the contrary and where the applicant never demanded that the examiner produce evidence to support his statement). If such notice is taken, the basis for such reasoning must be set forth explicitly. The examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge. See *Soli*, 317 F.2d at 946, 37 USPQ at 801; *Chevenard*, 139 F.2d at 713, 60 USPQ at 241. The applicant should be presented with the explicit basis on which the examiner regards the matter as subject to official notice and be allowed to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made.

C. If Applicant Challenges a Factual Assertion as Not Properly Officially Noticed or not Properly Based Upon Common Knowledge, the Examiner Must Support the Finding With Adequate Evidence

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111(b). See also *Chevenard*, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention."). A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. If applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained. See 37 CFR 1.104(c)(2). See also *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 ("[T]he Board [or examiner] must point to some concrete evidence in the record in support of these findings" to satisfy the substantial evidence test). If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2).

If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next Office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate. If the traverse was inadequate, the examiner should include an explanation as to why it was inadequate.







D. Determine Whether the Next Office Action Should Be Made Final

If the examiner adds a reference in the next Office action after applicant's rebuttal, and the newly added reference is added only as directly corresponding evidence to support the prior common knowledge finding, and it does not result in a new issue or constitute a new ground of rejection, the Office action may be made final. If no amendments are made to the claims, the examiner must not rely on any other teachings in the reference if the rejection is made final. If the newly cited reference is added for reasons other than to support the prior common knowledge statement and a new ground of rejection is introduced by the examiner that is not necessitated by applicant's amendment of the claims, the rejection may not be made final. See MPEP § 706.07(a).

E. Summary

Any rejection based on assertions that a fact is well-known or is common knowledge in the art without documentary evidence to support the examiner's conclusion should be judiciously applied. Furthermore, as noted by the court in *Ahlert*, any facts so noticed should be of notorious character and serve only to "fill in the gaps" in an insubstantial manner which might exist in the evidentiary showing made by the examiner to support a particular ground for rejection. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based. See *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697; *Ahlert*, 424 F.2d at 1092, 165 USPQ 421.<

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2145 Consideration of Applicant's Rebuttal Arguments [R-3] - 2100 Patentability

2145 Consideration of Applicant's Rebuttal Arguments [R-3]

I. ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS NECESSARY

Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See **MPEP § 2129** and **§ 2144.03** for a discussion of admissions as prior art.

The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness."). See **MPEP § 716.01(c)** for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.

II. ARGUING ADDITIONAL ADVANTAGES OR LATENT PROPERTIES

Prima Facie Obviousness Is Not Rebutted by Merely Recognizing Additional Advantages or Latent Properties Present in the Prior Art

Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) (Claims were directed to grooved carbon disc brakes wherein the grooves were provided to vent steam or vapor during a braking action. A prior art reference taught noncarbon disc brakes which were grooved for the purpose of cooling the faces of the braking members and eliminating dust. The court held the prior art references when combined would overcome the problems of dust and overheating solved by the prior art and would inherently overcome the steam or vapor cause of the problem relied upon for patentability by applicants. Granting a patent on the discovery of an unknown but inherent function (here venting steam or vapor) "would remove from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art." 596 F.2d at 1022, 201 USPQ at 661.); *In re Baxter Travenol Labs.*, 952 F.2d 388, 21 USPQ2d 1281 (Fed. Cir. 1991) (Appellant argued that the presence of DEHP as the plasticizer in a blood collection bag

unexpectedly suppressed hemolysis and therefore rebutted any *prima facie* showing of obviousness, however the closest prior art utilizing a DEHP plasticized blood collection bag inherently achieved same result, although this fact was unknown in the prior art.).

"The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious." *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985) (The prior art taught combustion fluid analyzers which used labyrinth heaters to maintain the samples at a uniform temperature. Although appellant showed an unexpectedly shorter response time was obtained when a labyrinth heater was employed, the Board held this advantage would flow naturally from following the suggestion of the prior art.). See also *Lantech Inc. v. Kaufman Co. of Ohio Inc.*, 878 F.2d 1446, 12 USPQ2d 1076, 1077 (Fed. Cir. 1989), *cert. denied*, 493 U.S. 1058 (1990) (unpublished - not citable as precedent) ("The recitation of an additional advantage associated with doing what the prior art suggests does not lend patentability to an otherwise unpatentable invention.").

In re Lintner, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) and *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990) discussed in MPEP § 2144 are also pertinent to this issue.

See MPEP § 716.02 - § 716.02(g) for a discussion of declaratory evidence alleging unexpected results.

III. ARGUING THAT PRIOR ART DEVICES ARE NOT PHYSICALLY COMBINABLE

"The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review."); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) ("Combining the teachings of references does not involve an ability to combine their specific structures.").

However, the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP § 2143.01.

IV. ARGUING AGAINST REFERENCES INDIVIDUALLY

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

V. ARGUING ABOUT THE NUMBER OF REFERENCES COMBINED

Reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991) (Court affirmed a rejection of a detailed claim to a candy sucker shaped like a thumb on a stick based on thirteen prior art references.).

VI. ARGUING LIMITATIONS WHICH ARE NOT CLAIMED

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993) (Claims to a superconducting magnet which generates a "uniform magnetic field" were not limited to the degree of magnetic field uniformity required for Nuclear Magnetic Resonance (NMR) imaging. Although the specification disclosed that the claimed magnet may be used in an NMR apparatus, the claims were not so limited.); *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571-72, 7 USPQ2d 1057, 1064-1065 (Fed. Cir.), *cert. denied*, 488 U.S. 892 (1988) (Various limitations on which appellant relied were not stated in the claims; the specification did not provide evidence indicating these limitations must be read into the claims to give meaning to the disputed terms.); *Ex parte McCullough*, 7 USPQ2d 1889, 1891 (Bd. Pat. App. & Inter. 1987) (Claimed electrode was rejected as obvious despite assertions that electrode functions differently than would be expected when used in nonaqueous battery since "although the demonstrated results may be germane to the patentability of a battery containing appellant's electrode, they are not germane to the patentability of the invention claimed on appeal.").

See MPEP § 2111 - § 2116.01, for additional case law relevant to claim interpretation.

VII. ARGUING ECONOMIC INFEASIBILITY

The fact that a combination would not be made by businessmen for economic reasons does not mean that a person of ordinary skill in the art would not make the combination because of some technological incompatibility. *In re Farrenkopf*, 713 F.2d 714, 219 USPQ 1 (Fed. Cir. 1983) (Prior art reference taught that addition of inhibitors to radioimmunoassay is the most convenient, but costliest solution to stability problem. The court held that the additional expense associated with the addition of inhibitors would not discourage one of ordinary skill in the art from seeking the convenience expected therefrom.).

VIII. ARGUING ABOUT THE AGE OF REFERENCES

"The mere age of the references is not persuasive of the unobviousness of the combination of their teachings, absent evidence that, notwithstanding knowledge of the references, the art tried and failed to solve the problem." *In re Wright*, 569 F.2d 1124, 1127, 193 USPQ 332, 335 (CCPA 1977) (100 year old patent was properly relied upon in a rejection based on a combination of references.). See also *Ex parte Meyer*, 6 USPQ2d 1966 (Bd. Pat. App. & Inter. 1988) (length of time between the

issuance of prior art patents relied upon (1920 and 1976) was not persuasive of unobviousness).

IX. ARGUING THAT PRIOR ART IS NONANALOGOUS

A prior art reference is analogous if the reference is in the field of applicant's endeavor or, if not, the reference is reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

See MPEP § 2141.01(a) for case law pertaining to analogous art.

X. ARGUING IMPROPER RATIONALES FOR COMBINING REFERENCES

A. Impermissible Hindsight

Applicants may argue that the examiner's conclusion of obviousness is based on improper hindsight reasoning. However, "[a]ny judgement on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971). Applicants may also argue that the combination of two or more references is "hindsight" because "express" motivation to combine the references is lacking. However, there is no requirement that an "express, written motivation to combine must appear in prior art references before a finding of obviousness." See *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1276, 69 USPQ2d 1686, 1690 (Fed. Cir. 2004). For example, motivation to combine prior art references may exist in the nature of the problem to be solved (*Ruiz* at 1276, 69 USPQ2d at 1690) or the knowledge of one of ordinary skill in the art (*National Steel Car v. Canadian Pacific Railway Ltd.*, 357 F.3d 1319, 1338, 69 USPQ2d 1641, 1656 (Fed. Cir. 2004)). See MPEP § 2143.01 for a discussion of proper motivation to combine references.

B. Obvious To Try Rationale

An applicant may argue the examiner is applying an improper "obvious to try" rationale in support of an obviousness rejection.

"The admonition that 'obvious to try' is not the standard under § 103 has been directed mainly at two kinds of error. In some cases, what would have been 'obvious to try' would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful.... In others, what was 'obvious to try' was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it." *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (citations omitted) (The court held the claimed method would have been obvious over the

prior art relied upon because one reference contained a detailed enabling methodology, a suggestion to modify the prior art to produce the claimed invention, and evidence suggesting the modification would be successful.). See the cases cited in *O'Farrell* for examples of decisions where the court discussed an improper "obvious to try" approach. See also *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990) and *In re Ball Corp.*, 925 F.2d 1480, 18 USPQ2d 1491 (Fed. Cir. 1991) (unpublished) for examples of cases where appellants argued that an improper "obvious to try" standard was applied, but the court found that there was proper motivation to modify the references.

C. Lack of Suggestion To Combine References

As discussed in MPEP § 2143.01, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine reference teachings. The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references, as discussed in the aforementioned section.

D. References Teach Away from the Invention or Render Prior Art Unsatisfactory for Intended Purpose

In addition to the material below, see MPEP § 2141.02 (prior art must be considered in its entirety, including disclosures that teach away from the claims) and MPEP § 2143.01 (proposed modification cannot render the prior art unsatisfactory for its intended purpose or change the principle of operation of a reference).

1. The Nature of the Teaching Is Highly Relevant

A prior art reference that "teaches away" from the claimed invention is a significant factor to be considered in determining obviousness; however, "the nature of the teaching is highly relevant and must be weighed in substance. A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) (Claims were directed to an epoxy resin based printed circuit material. A prior art reference disclosed a polyester-imide resin based printed circuit material, and taught that although epoxy resin based materials have acceptable stability and some degree of flexibility, they are inferior to polyester-imide resin based materials. The court held the claims would have been obvious over the prior art because the reference taught epoxy resin based material was useful for applicant's purpose, applicant did not distinguish the claimed epoxy from the prior art epoxy, and applicant asserted no discovery beyond what was known to the art.).

>Furthermore, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed.." *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).<

2. References Cannot Be Combined Where Reference Teaches Away from Their

Combination

It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983) (The claimed catalyst which contained both iron and an alkali metal was not suggested by the combination of a reference which taught the interchangeability of antimony and alkali metal with the same beneficial result, combined with a reference expressly excluding antimony from, and adding iron to, a catalyst.).

3. Proceeding Contrary to Accepted Wisdom Is Evidence of Nonobviousness

The totality of the prior art must be considered, and proceeding contrary to accepted wisdom in the art is evidence of nonobviousness. *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986) (Applicant's claimed process for sulfonating diphenyl sulfone at a temperature above 127°C was contrary to accepted wisdom because the prior art as a whole suggested using lower temperatures for optimum results as evidenced by charring, decomposition, or reduced yields at higher temperatures.).

Furthermore, "[k]nown disadvantages in old devices which would naturally discourage search for new inventions may be taken into account in determining obviousness." *United States v. Adams*, 383 U.S. 39, 52, 148 USPQ 479, 484 (1966).

XI. FORM PARAGRAPHS

See **MPEP § 707.07(f)** for form paragraphs 7.37 through 7.38 which may be used where applicant's arguments are not persuasive or are moot.

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707.07(i) Each Claim To Be Mentioned in Each Office Action [R-3] - 700 Examination of Applications

707.07(i) Each Claim To Be Mentioned in Each Office Action [R-3]

In every Office action, each pending claim should be mentioned by number, and its treatment or status given. Since a claim retains its original numeral throughout the prosecution of the application, its history through successive actions is thus easily traceable. Each action should include a summary of the status of all claims presented for examination. Form PTO-326 "Office Action Summary" should be used.

Claims retained under 37 CFR 1.142 and claims retained under 37 CFR 1.146 should be treated as set out in MPEP § 821 to § **821.04(b)**.

See MPEP **Chapter 2300** for treatment of claims in the application of losing party in interference.

The Index of Claims should be kept up to date as set forth in MPEP § 719.04. For Image File Wrapper (IFW) processing, see IFW Manual.

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US005150487A

United States Patent [19]

Hemphill

[11] Patent Number: **5,150,487**
[45] Date of Patent: **Sep. 29, 1992**

[54] EVACUATION RESTRAINT

[75] Inventor: **Desmond J. Hemphill**, Ballarat1,
Australia
[73] Assignee: **Hemco Industries Pty. Ltd.**, Australia
[21] Appl. No.: **835,001**
[22] Filed: **Feb. 11, 1992**

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Primary Examiner—Michael F. Trettel
Attorney, Agent, or Firm—Andrus, Scales, Starke &
Sawall

Related U.S. Application Data

[63] Continuation of Ser. No. 603,778, filed as
PCT/AU89/00142, Mar. 31, 1989, abandoned.

[30] Foreign Application Priority Data

Mar. 31, 1988 [AU] Australia P17672

[51] Int. Cl.⁵ **A61C 1/00**

[52] U.S. Cl. **5/625; 5/627;**
5/628

[58] Field of Search 5/625-629;
128/809, 870; 294/140, 151, 152, 165; 206/632,
633, 803

[56] References Cited

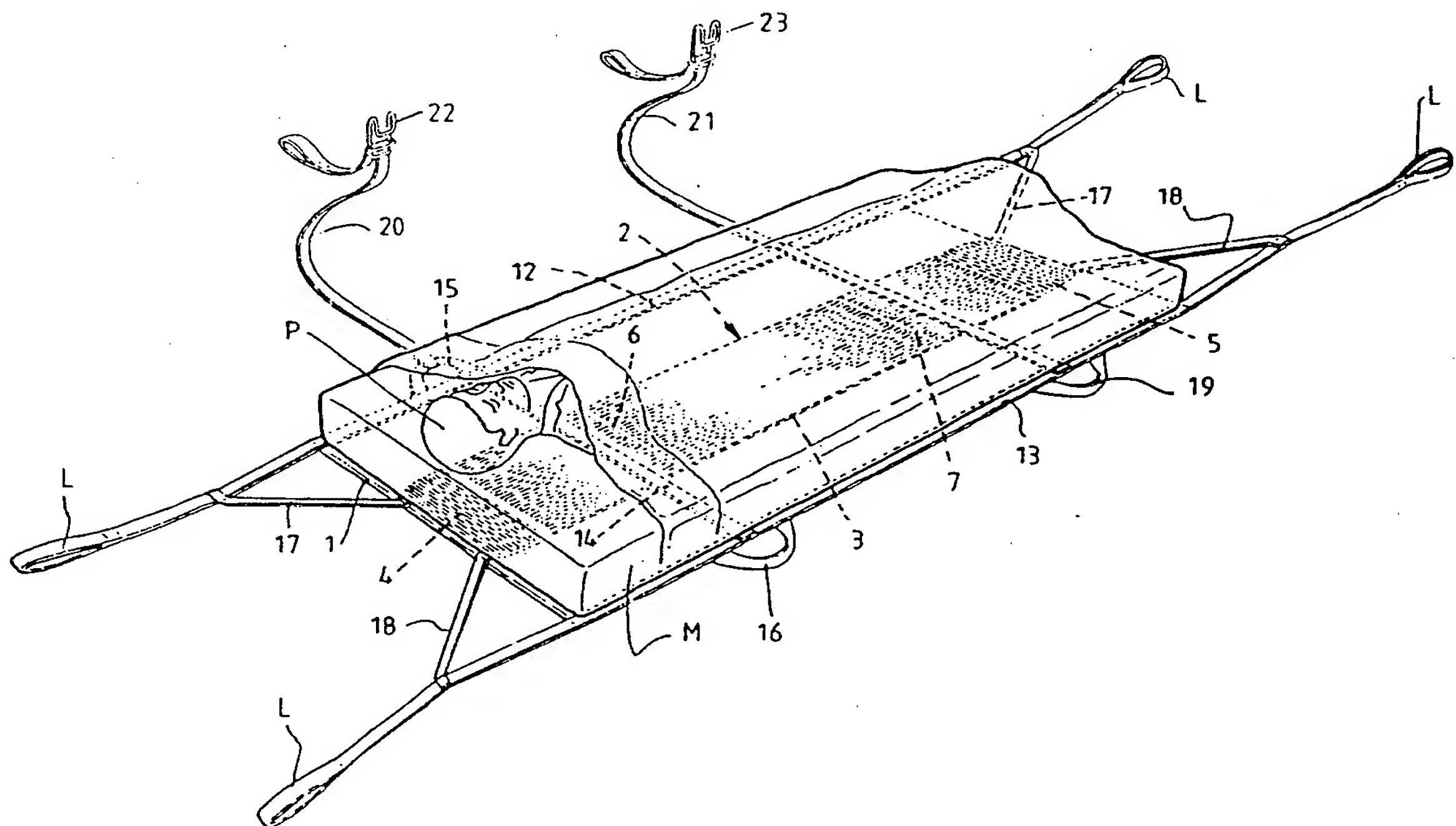
U.S. PATENT DOCUMENTS

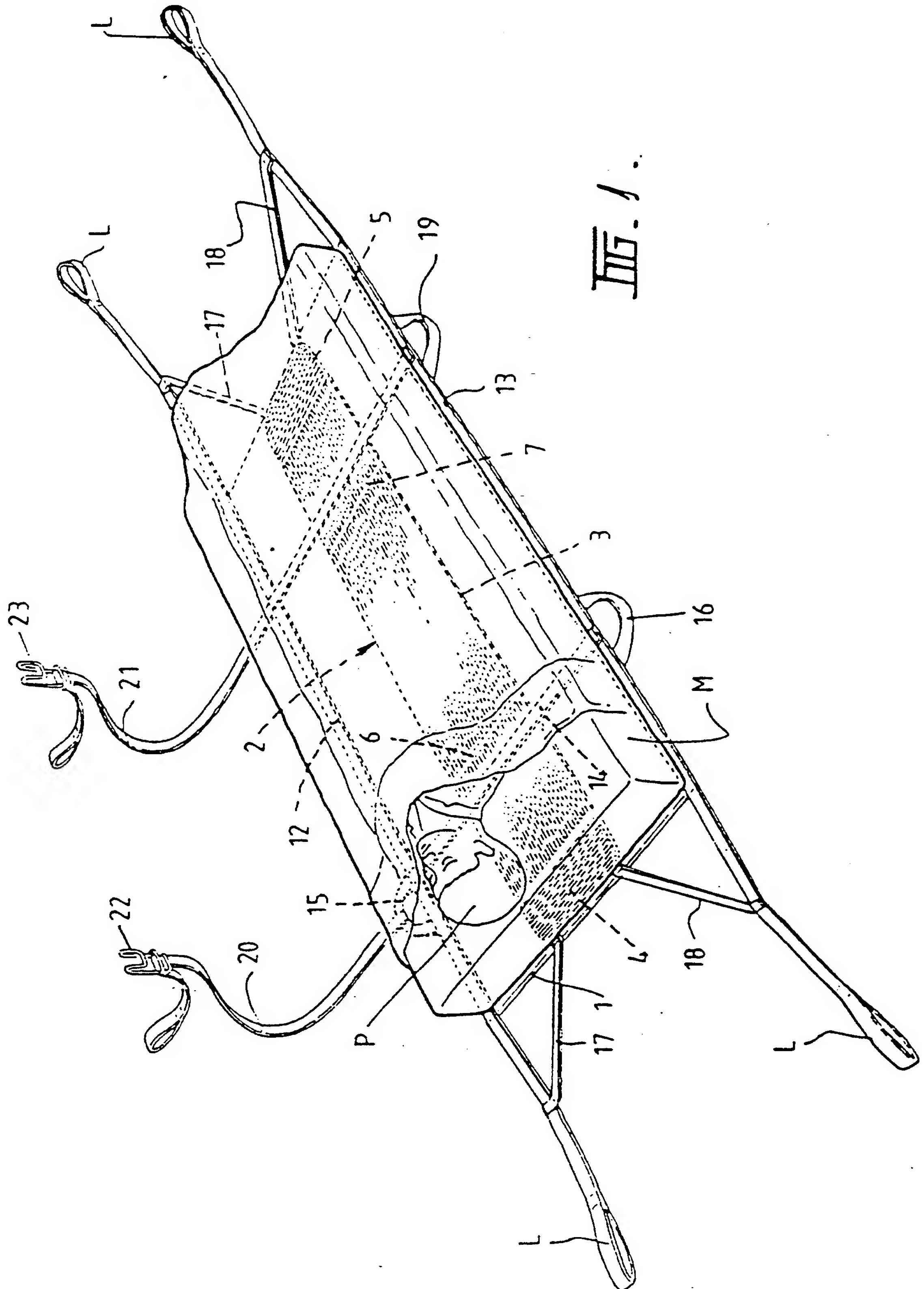
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3,829,914	8/1974	Treat	5/82 R X
3,986,505	10/1976	Power	5/82 R X
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[57] ABSTRACT

An evacuation restraint comprising a base sheet (1) of flexible fabric, a rigid support member (2) of corrugated plastics board material including a central rectangular portion (3) having its corrugations running longitudinally and smaller rectangular portions (4 and 5) flexibly connected to either end of the central portion (3) having their corrugations running transversely, said support member being secured by sewing or adhesive to said base sheet (1), said base sheet (1) extending beyond the edges of said support member (2) and having longitudinal straps (12 and 13) secured at its edges, bracing straps (17 and 18) extending from the straps (12 and 13) to the ends of the base sheet and transverse straps (20 and 21) having loop connectors (22 and 23) adapted to engage loops (16 and 19) secured to the edges of the base sheet (1) to enable the base sheet to envelope a patient (P) supported by a mattress (M) (FIG. 3) for evacuation purposes.

9 Claims, 6 Drawing Sheets





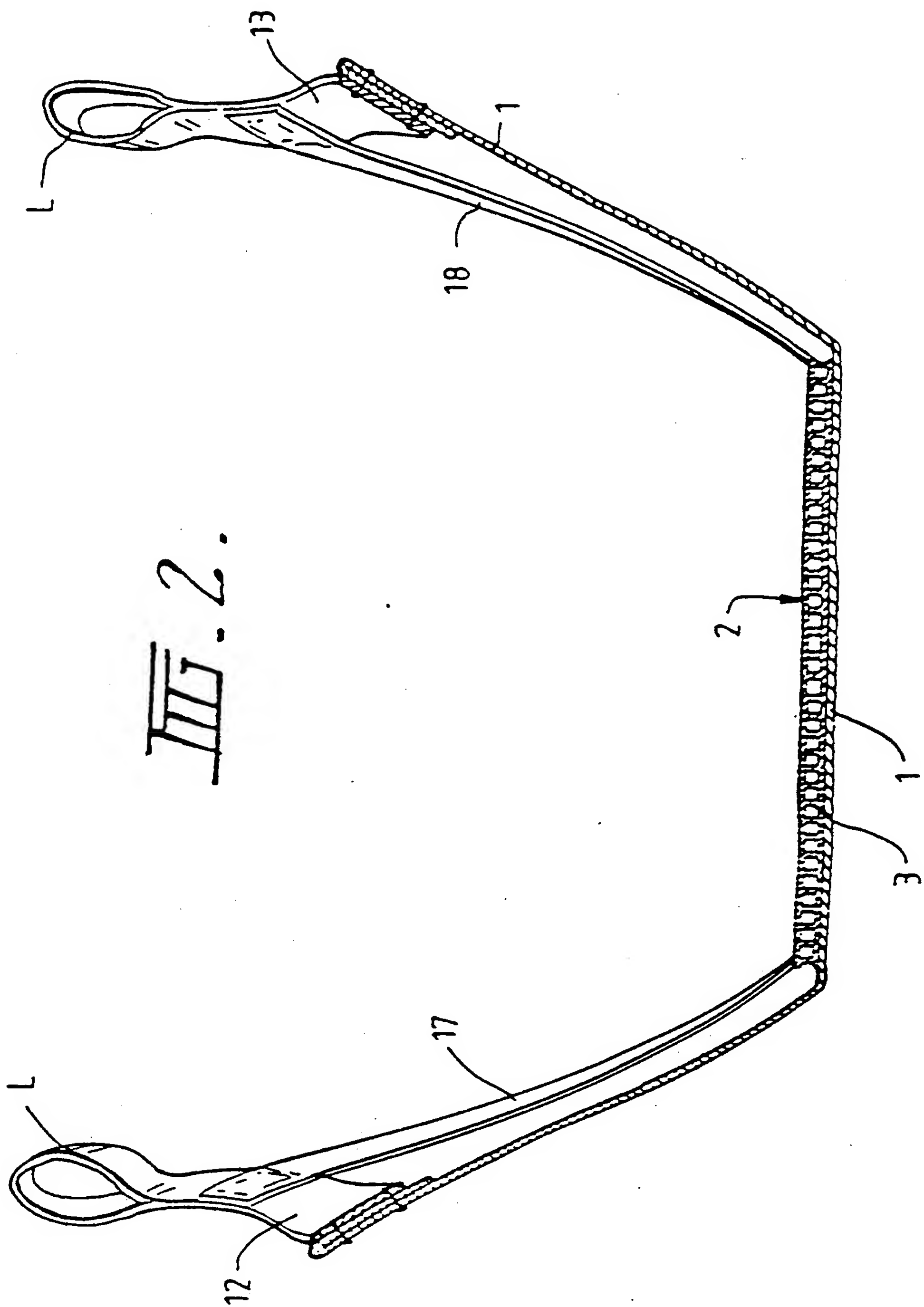
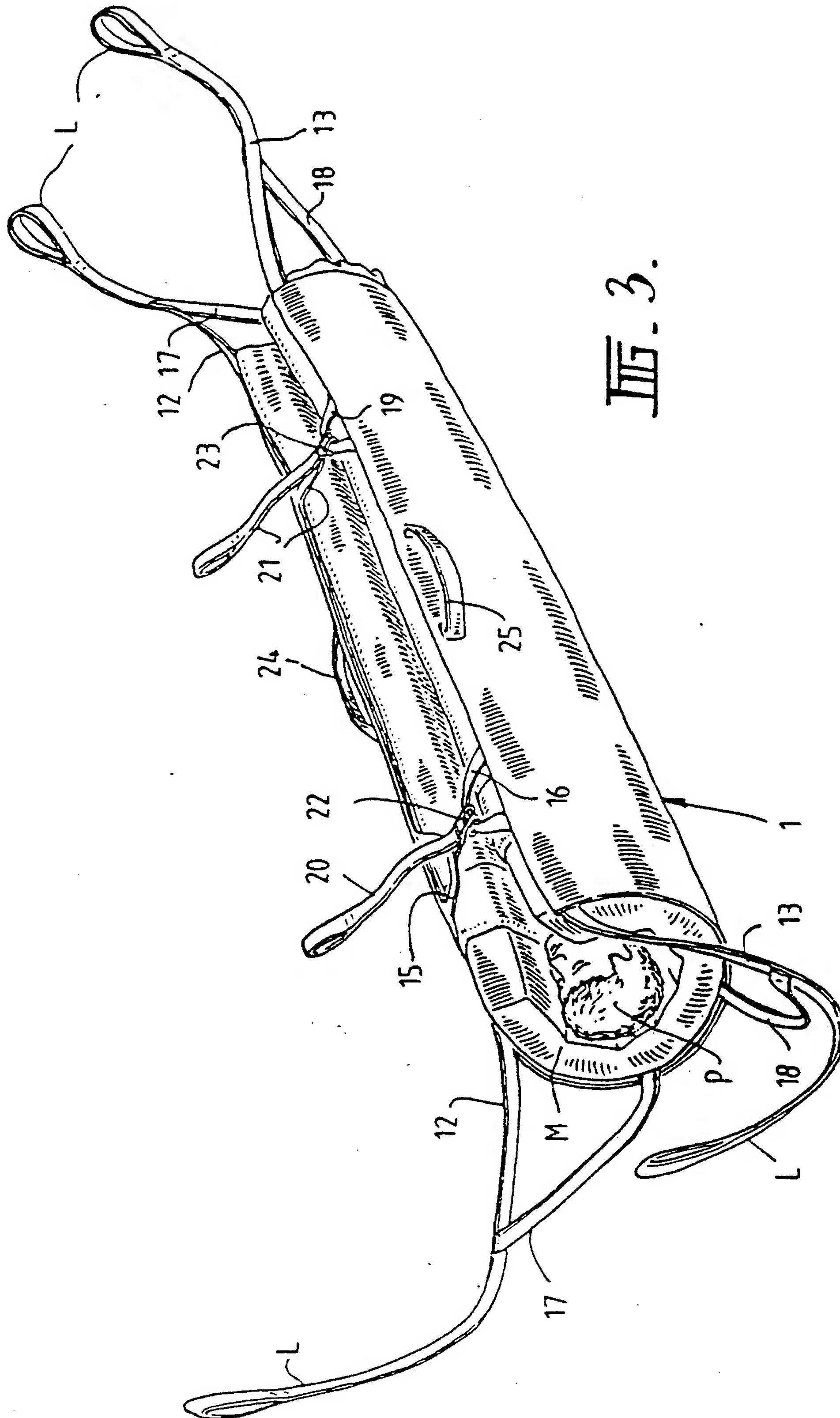


FIG. 2.



III. 3.

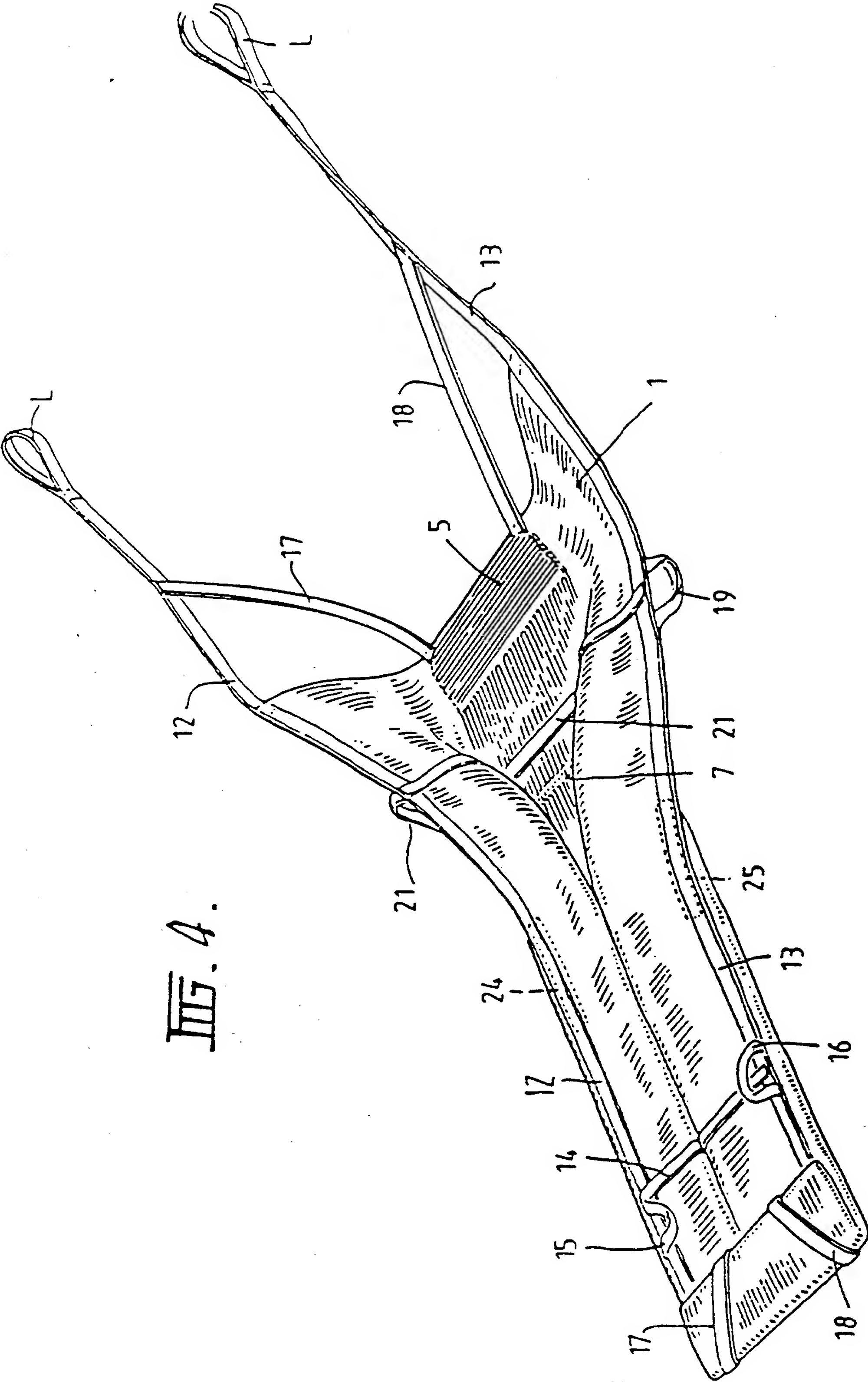
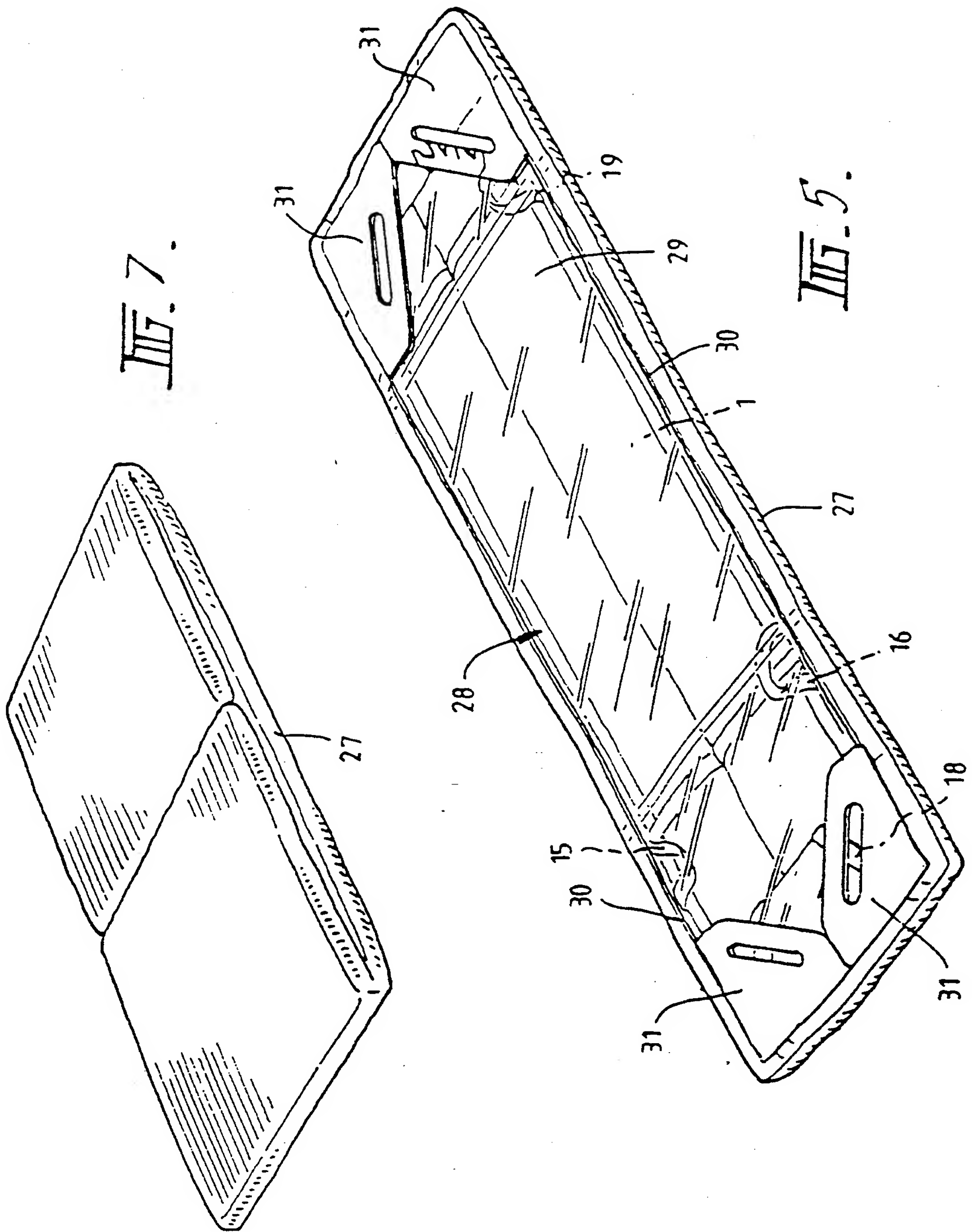
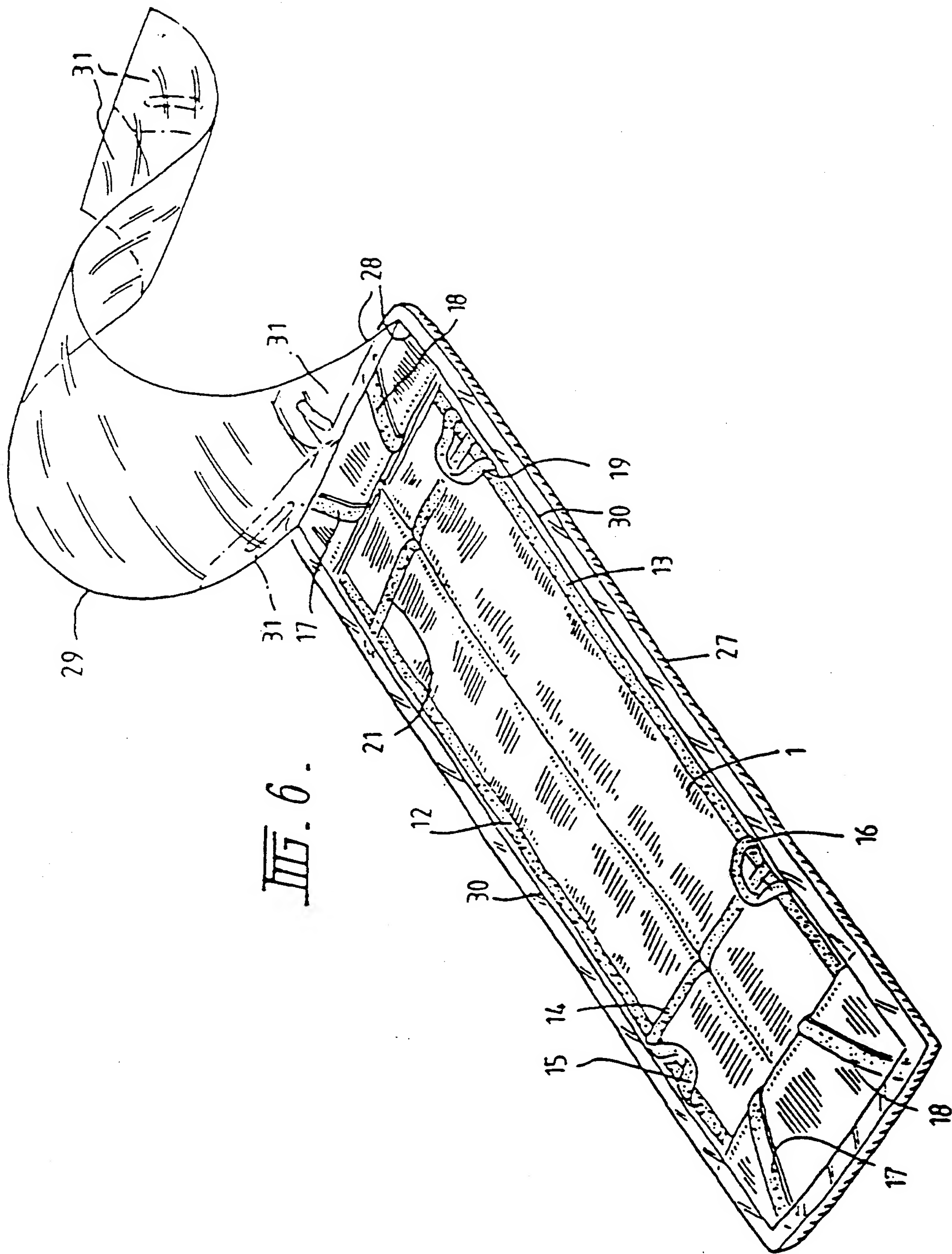


Fig. 4.





EVACUATION RESTRAINT

This is wrapper continuation of application Ser. No. 07/603,778, filed as PCT/AU89/00142, Mar. 31, 1989, now abandoned.

FIELD OF THE INVENTION

This invention relates to improvements in evacuation restraints of the type suitable for positioning under the mattress of a bed in a hospital or other institution housing bed-confined persons.

BACKGROUND OF THE INVENTION

In our Australian Patent No. 536070 (AU-B 62281/80) we have described an improved evacuation restraint which materially improved the securement of bedridden patients for evacuation purposes. In using evacuation restraints embodying the above invention, the mattress supporting a bed-confined patient is utilised to minimise the disturbance of the patient and to protect the patient during the evacuation procedure.

Further consideration of evacuation procedures has shown that it is advantageous to be able to slide the restraint-confined mattress along the floor, over obstacles or down stairs. The restraint described in our earlier patent has been found to be not entirely suitable for that purpose even though it offered a material improvement over the previously known restraints in the manner in which it confined a patient within a mattress.

To protect restraints of the above type against soiling and to enable it to be accessed in a standard manner to minimise delays in the event of an emergency, the restraint is desirably housed in a plastics envelope of the type described in Australian Patent AU-B 34433/78 (U.S. Pat. No. 4,186,453). However, in using packages of this type it has been found that access to the pull handles by means of which the envelope is opened to gain access to the restraint straps requires the mattress to be lifted to an excessive extent whereby the patient may be undesirably disturbed. Furthermore, the package described in the above patent is not entirely convenient to handle during manufacture, marketing and storage prior to use and the cost of manufacture of such packages is relatively high.

SUMMARY OF INVENTION AND OBJECTS

It is an object of the present invention to provide an improved evacuation restraint in which the shortcomings of the prior art restraints discussed above are at least ameliorated. It is the secondary object of the invention to provide a simplified packaging envelope for such evacuation restraints.

Accordingly, the invention provides an evacuation restraint comprising a generally rectangular base sheet (1) of strong flexible material, a generally rectangular support member (2) located centrally of said base sheet (1) and joined thereto on top of said base sheet, said support member being formed of lightweight non-bulky material having greater rigidity than said base sheet being capable of deformation transversely of the support member, said base sheet (1) extending substantially from either side of said support member (2) to enable the base sheet in use to envelop a patient to be evacuated, strap members (12, 13, 14, 17, 18, 20, 21) secured at least to said base sheet (1) and extending from the sides of the base sheet (1), said strap members including means (16, 19, 22, 23) for connecting opposite strap members (12,13) together at at least two longitudinally

spaced positions, and strap members (12,13) extending from at least one end of said base sheet (1) by means of which the restraint may be manipulated during evacuation procedures, said support member (2) providing with said base sheet a smooth relatively rigid base on which the restraint may slide during evacuation procedures.

In a preferred form of the invention, the restraint is enclosed within a protective envelope having means for gaining access to said base sheet and said straps. Preferably the protective envelope includes a base portion and a top portion, said top portion having one or more means for enabling removal of the top portion from the base portion. The top portion is preferably made from a suitable transparent plastics material and the means for enabling access comprises a line of weakening formed in said top portion and one or more gripping handles or tabs secured to said top portion by means of which the top portion may be torn open to expose the base sheet and straps.

The support member preferably comprises a sheet of lightweight corrugated board which is most preferably formed from plastics materials. The board is preferably capable of being folded along at least two transverse lines so that the evacuation restraint and protective envelope may be folded into a more convenient size for marketing and storage purposes.

BRIEF DESCRIPTION OF THE DRAWINGS

One presently preferred form of the invention will now be described with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of the restraint in the unfolded position showing a mattress and patient ready to be enveloped;

FIG. 2 is a sectional end elevation of the restraint of FIG. 1;

FIG. 3 shows the restraint in use;

FIG. 4 shows the restraint partly folded ready for packaging;

FIG. 5 shows the restraint packaged in its envelope;

FIG. 6 is a perspective view of the restraint partly opened; and

FIG. 7 shows the packaged restraint in the folded condition.

DESCRIPTION OF PREFERRED EMBODIMENT

Referring firstly to FIGS. 1 and 2 of the drawings, the restraint embodying the invention will be seen to comprise a generally rectangular base sheet 1 of flexible fabric, such as polyester, which has been treated to be fire resistant, water resistant and relatively friction free, for example by coating or impregnation with Teflon (registered trade mark). A relatively rigid support member 2 is secured centrally to the base sheet 1 by sewing or by adhesive. In the present case, the support member 2 comprises a rectangular sheet 3 of corrugated board formed from plastics material, such as corrugated board sold under the trade mark Corflute, to each end of which small rectangular pieces 4 and 5 are flexibly attached, say by sewing or the like. It will be noted from FIG. 1 that the central rectangular portion 3 has its corrugations running longitudinally while the smaller portions 4 and 5 have its corrugations running transversely. Furthermore, the central portion 3 is formed with fold lines 6 and 7 to enable the end portions of 3 and the smaller portions 4 and 5 to be folded inwardly on to the most central portion of 3.

Referring still to FIG. 1 of the drawings, webbing straps 12 and 13 are secured by sewing or by adhesive or the like to opposite longitudinal edges of the base sheet 1. The straps 12 and 13 extend beyond the ends of the base sheet 1 and terminate in loops L by means of which the restraint may be handled during an emergency. Strap portions 17, 18 extend from a point of attachment to each strap 12, 13 a short distance (e.g. about 6 cm) from the ends of the sheet 1 to a point of attachment to the end of the sheet 1 at the edge of each smaller portion 4 and 5 by sewing, adhesive or the like. A further length of webbing strap extends transversely across the base sheet 1 at 14 and is formed in small loops 15 and 16 extending from either edge of the base sheet where they are secured by sewing to the side straps 12 and 13. A still further length of webbing 21 extends transversely across the sheet 1 near its lower end and is attached to the side straps 12 and 13. The webbing 21 defines a loop 19 at the right hand side of the sheet 1 and has a wire loop connector 23 of known construction secured thereto at the other end. A further strap 20 is attached to the loop 15 and has a similar adjustable wire loop connector 22 attached thereto. The connectors 22 and 23 are adapted to engage the loops 16 and 19 respectively, as shown most clearly in FIG. 3 of the drawings, to cause a mattress and patient supported on the restraint to be enveloped for evacuation purposes.

To enable the restraint to be conveniently stored in a protective package, the side portions of the base sheet 1 and the restraint straps 12, 13, 14 and 21 are folded inwardly to the centre of the support member 2 and are then folded back on top of the inwardly folded portions. The end portions, including portions 4 and 5, are folded inwardly over the folded portions and the end portions of the straps 12 and 13 are tucked under the folded end portions so that the loops L are exposed at the ends of the folded restraint. The folding of the restraint is shown most clearly in FIG. 4 of the drawings. The restraint is then ready to be packaged in its protective envelope, as further described below. To enable the side portions of the base sheet to be readily unfolded, additional gripping loops 24 and 25 are secured centrally to the underside of each edge of the base sheet 1, as shown in FIGS. 3 and 4 of the drawings. These loops 24 and 25 also assist in the evacuation procedures since the restraint may be centrally gripped thereby.

Referring now to FIGS. 5, 6 and 7 of the drawings, the protective envelope for the restraint will be seen to comprise a base portion 27 of suitable plastics material which is either treated with a material which causes the material to be slightly sticky, or "non-slip" in character, or is made from a "non-slip" plastic to retain its position under a mattress in use and so that the base portion 27 tends to stay in position as the restraint is removed therefrom. A clear plastics top portion 28 is secured by heat sealing around the periphery of the bottom portion 27 and a central panel 29 of the top portion 28 is removable by tearing along a weakening line 30 formed during the heat sealing process. To assist in the removal of the panel 29, handles 31 are heat welded to each corner of the panel 29 at either end, for example, as shown in FIG. 5 of the drawings. For instructional purposes, one or more of the handles 31 may be printed with a replica of a hand to show how the handles are to be gripped when the panel is to be removed. Each handle is secured along a substantial portion of each corner of the panel 29 to ensure that the panel will tear away along the line 30 when the handles 31 are pulled.

For transport and storage purposes, the package restraint is able to be folded along the lines 6 and 7 to a more convenient size as shown in FIG. 7 of the drawings.

In use, the packaged restraint is stored centrally under the mattress M supporting a bed-confined patient P. In the event of an emergency, the operator performing the evacuation reaches under the mattress and grips one or more of the handles 31 to tear the panel 29 from the protective envelope along the weakening line 30. The loops L at the ends are pulled and the diagonal portions 17, 18 assist in unfolding the portions 4 and 5 and the attached portions of the sheet 1. As shown in FIG. 6, access is thereby gained to the handle 25 and the folded edges of the base sheet 1 may be moved by pulling the handles 24 and 25 sideways thereby giving access to the loops 16 and 19 and the straps 20 and 21. The connectors 22 and 23 are then engaged with the loops 16 and 19 and the lengths of the straps 20 and 21 adjusted to bring the mattress M into an enveloping relationship with the patient P, as shown in FIG. 3 of the drawings. The patient P may then be evacuated by means of the loops L, 24 and 25.

Since the support member 2 provides a relatively rigid flat surface covered by the base sheet 1, the restraint is able to slide over floors, stairs or obstructions, assisted by the low-friction coating on the base sheet 1. Furthermore, since the base sheet 1 almost encloses the mattress M and patient P, additional protection is provided in the event that fire or water are encountered. Thus, the restraint embodying the present invention provides a significant advance over the prior art restraints and provides even further advantages when contained in the improved protective envelope described above.

I claim:

1. An evacuation restraint comprising a substantially rectangular base sheet (1) of strong flexible material, a substantially rectangular support member (2) located centrally of said base sheet (1) and joined thereto on top of said base sheet, said support member being formed of a continuous sheet of lightweight non-bulky material having greater rigidity than said base sheet and being capable of deformation transversely of the support member and being substantially equally rigid across its full width, said base sheet (1) extending substantially from either side of said support member (2) to enable the base sheet and support member in use to be flexed together and to uniformly envelop a patient to be evacuated, strap members (12,13,14,17,18,20,21) secured at least to said base sheet (1) and extending from the sides of the base sheet (1), said strap members including means (16,19,22,23) for connecting opposite strap members (12,13) together at at least two longitudinally spaced positions, and further strap members (12,13) extending from at least one end of said base sheet (1) by means of which the restraint can be manipulated during evacuation procedures, said support member (2) having substantially greater rigidity in the longitudinal direction than the transverse direction and providing with said base sheet a smooth relatively rigid base on which the restraint can slide during evacuation procedures.

2. The restraint of claim 1, wherein said support member (2) comprises a sheet of lightweight corrugated board (3) the corrugations of which extend longitudinally of the restraint.

3. The restraint of claim 2, wherein said corrugated board (3) is formed from plastics material.

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4. The restraint of claim 2 or 3, wherein said support member (2) comprises a central portion (3) and separate rectangular portions (4,5) flexibly attached to said central portion (3) at either end thereof.

5. The restraint of claim 4 wherein the corrugations of said separate rectangular portions (4,5) extend at right angles to the corrugations in said central portion (3).

6. The restraint of claim 1 or 2, wherein said further strap members include two straps (12,13) extending longitudinally of said base sheet (1) and attached thereto adjacent each longitudinal edge thereof, each strap being formed into a hand loop (L) at at least one end, bracing straps (17,18) extending between said straps at a position spaced from each end of said base sheet (1) to said base sheet (1) and/or said support member (2).

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7. The restraint of claim 1 or 2, further comprising a protective envelope (27,28) enclosing said restraint and having means (30,31) for gaining access to said base sheet (1) and said strap members.

8. The restraint of claim 7, wherein said envelope includes a base portion (27) and a top portion (28), said top portion (28) having one or more means for enabling removal of said top portion (27) from said base portion (28).

9. The restraint of claim 8, wherein said top portion (27) is made from a transparent plastics material and the means for gaining access comprises a line of weakening (30) formed in said top portion (27) and the means for enabling removal comprises one or more gripping handles (31) or tabs secured to said top portion (27) by means of which the top portion (27) can be torn open to expose the base sheet (1) and said strap means.

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US005582893A

United States Patent [19]**Böttger et al.**[11] **Patent Number:** **5,582,893**[45] **Date of Patent:** **Dec. 10, 1996**[54] **SPACING FABRIC**[76] Inventors: **Wolfgang Böttger**, Am Künzacker 1,
95361 Ködnitz; **Friedrich Hörsch**,
Wüstenroterweg 21, 89081 Ulm, both of
Germany[21] Appl. No.: **114,515**[22] Filed: **Aug. 31, 1993**[30] **Foreign Application Priority Data**

Aug. 31, 1992 [DE] Germany 42 28 958.0

[51] **Int. Cl.⁶** **B32B 3/02**; B32B 3/06;
B32B 7/00[52] **U.S. Cl.** **428/86**; 428/85; 428/102;
428/120; 428/224; 428/246; 428/255; 428/902[58] **Field of Search** 428/85, 86, 102,
428/120, 224, 246, 255, 902[56] **References Cited****U.S. PATENT DOCUMENTS**

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Primary Examiner—Terrel Morris*Attorney, Agent, or Firm*—Martin A. Farber[57] **ABSTRACT**

A spacing fabric (3), in particular velour fabric, which spacing fabric has a first and second layer (4, 5) and intermediate webs (7) connecting these layers (4, 5) and is made of a technical yarn like aramide fibre, carbon fibre, ceramic fibre, or, in particular, glass fibre, with a resetting force inherent to the intermediate webs (7) which tends to automatically keep the layers (4, 5) of the spacing fabric (3) apart, especially also after resinification. The invention proposes that, in order to control the spacing of the layers of the spacing fabric, the layers (4, 5) of the spacing fabric (3) be attached to one another so that they can be detached.

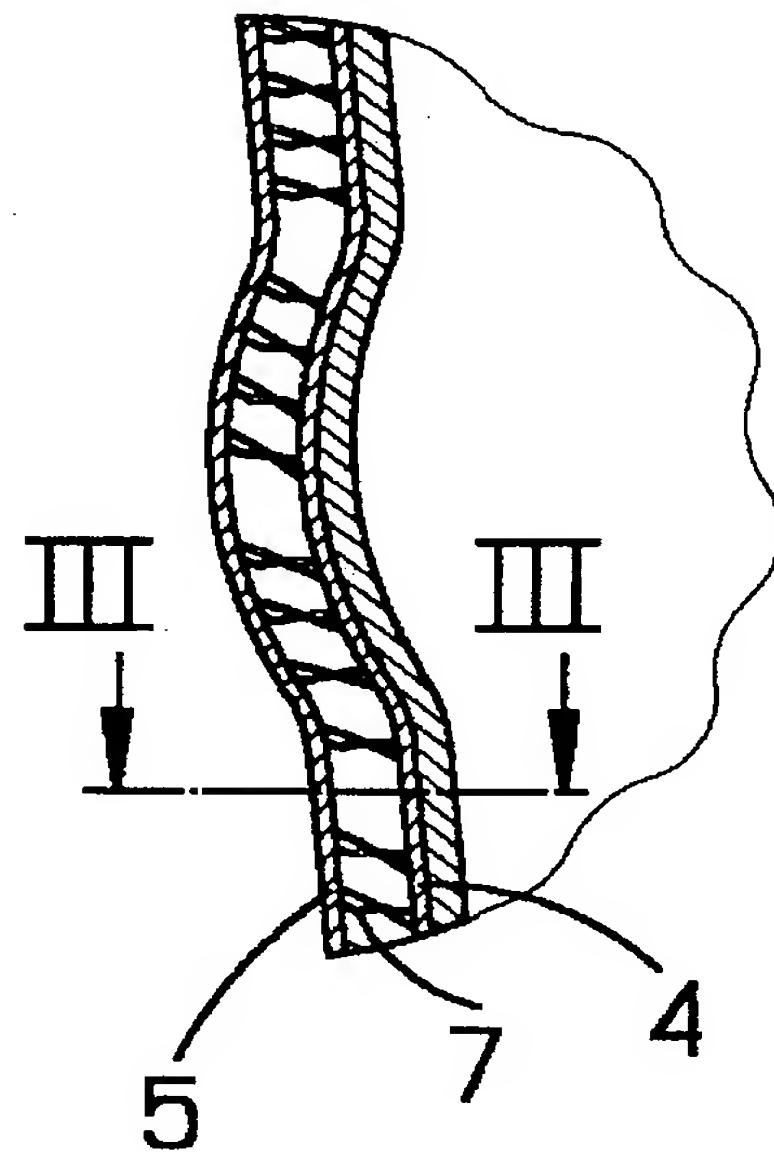
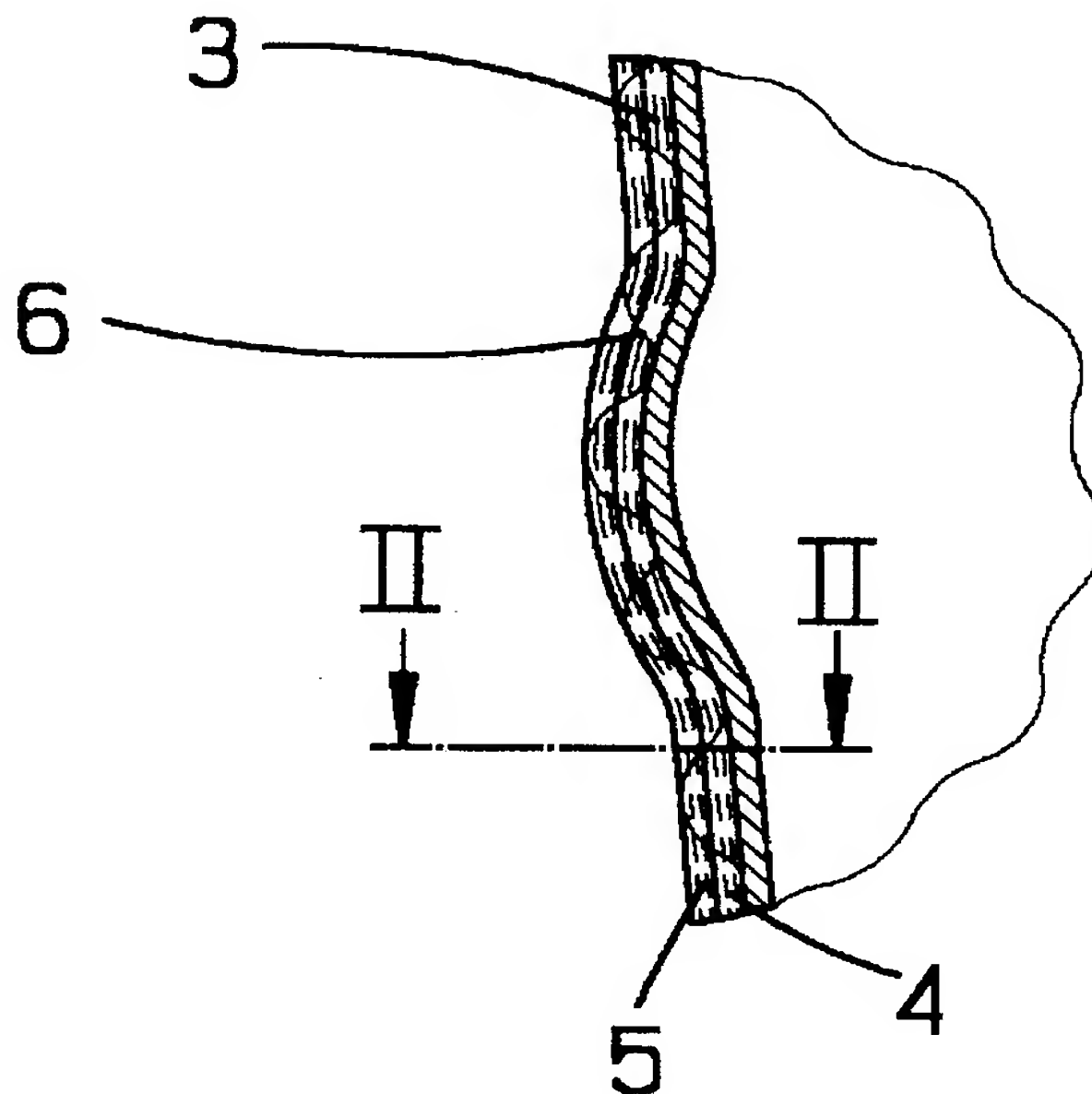
10 Claims, 3 Drawing Sheets

Fig. 1

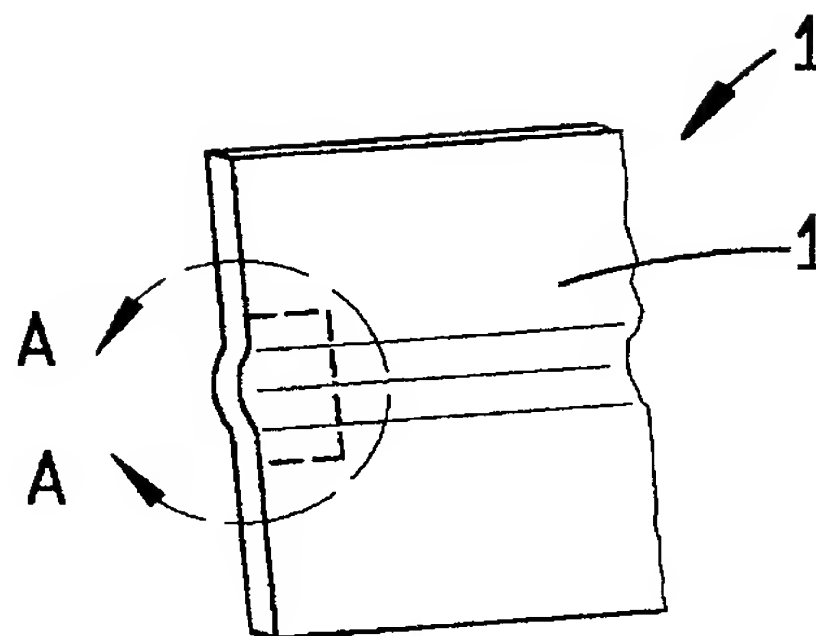


Fig. 1a

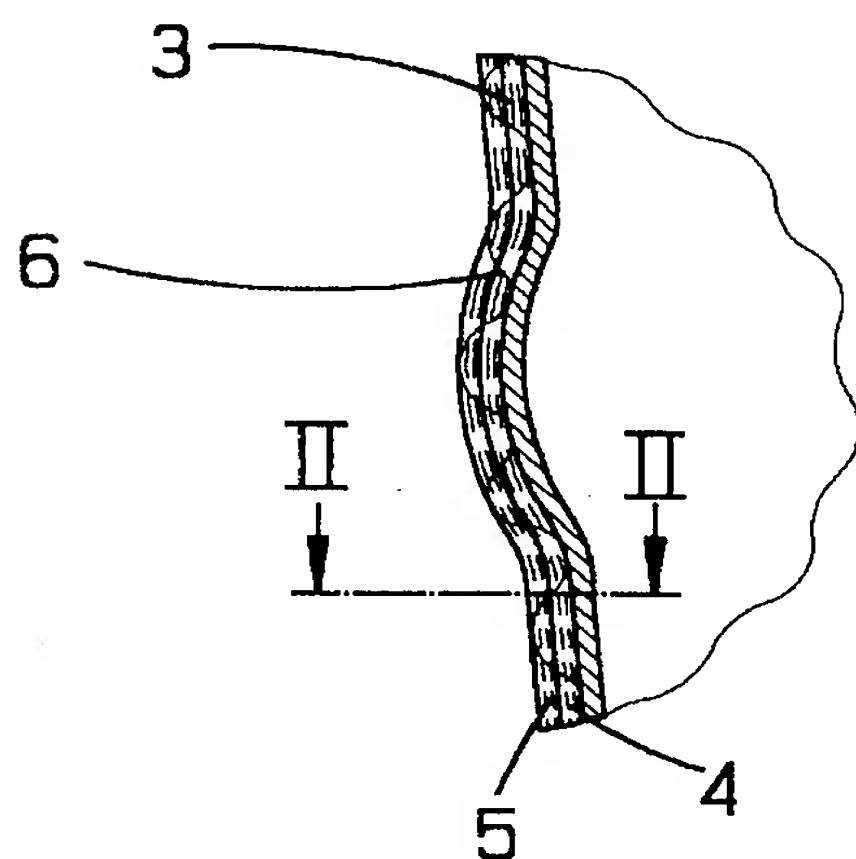


Fig. 1b

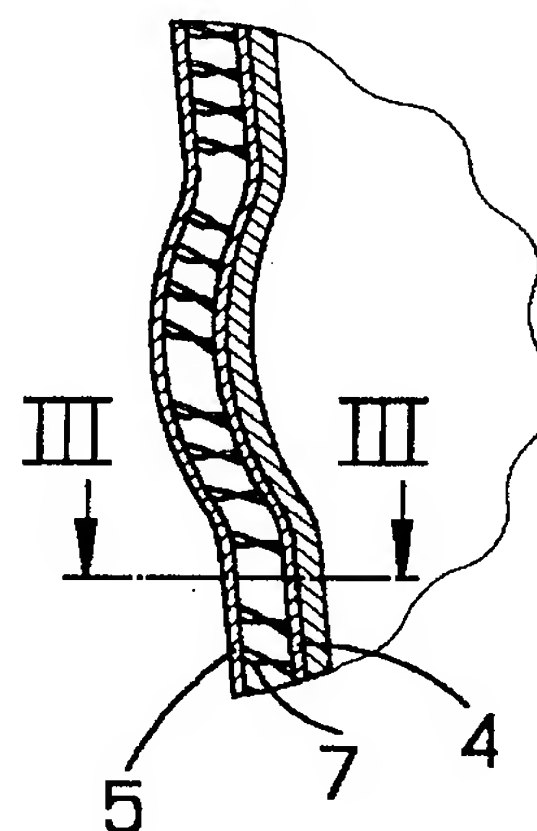


Fig. 2

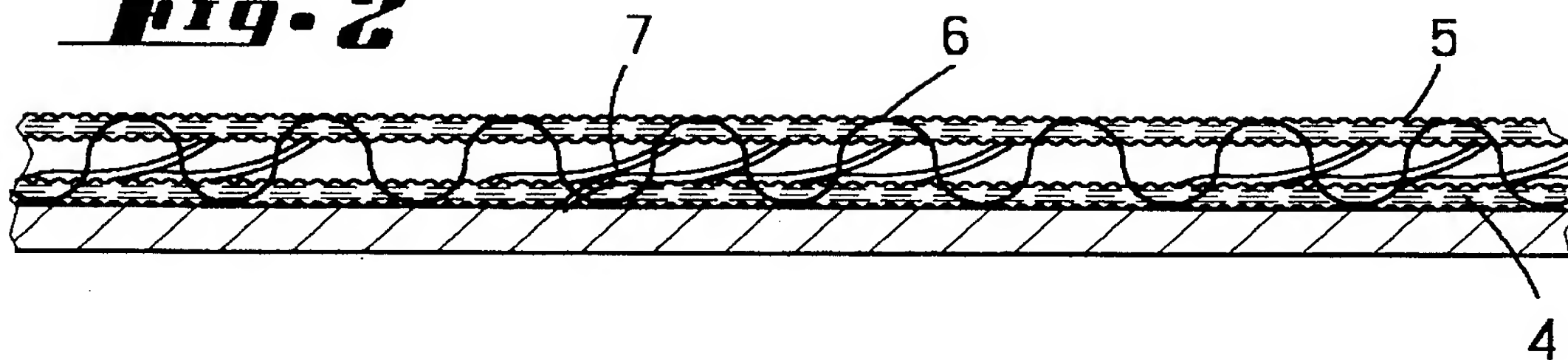
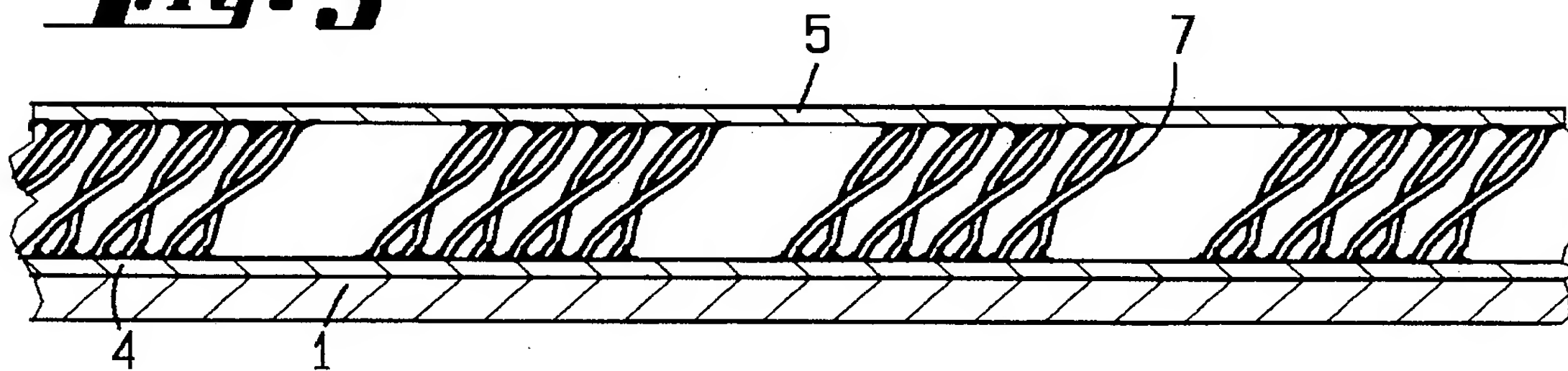


Fig. 3



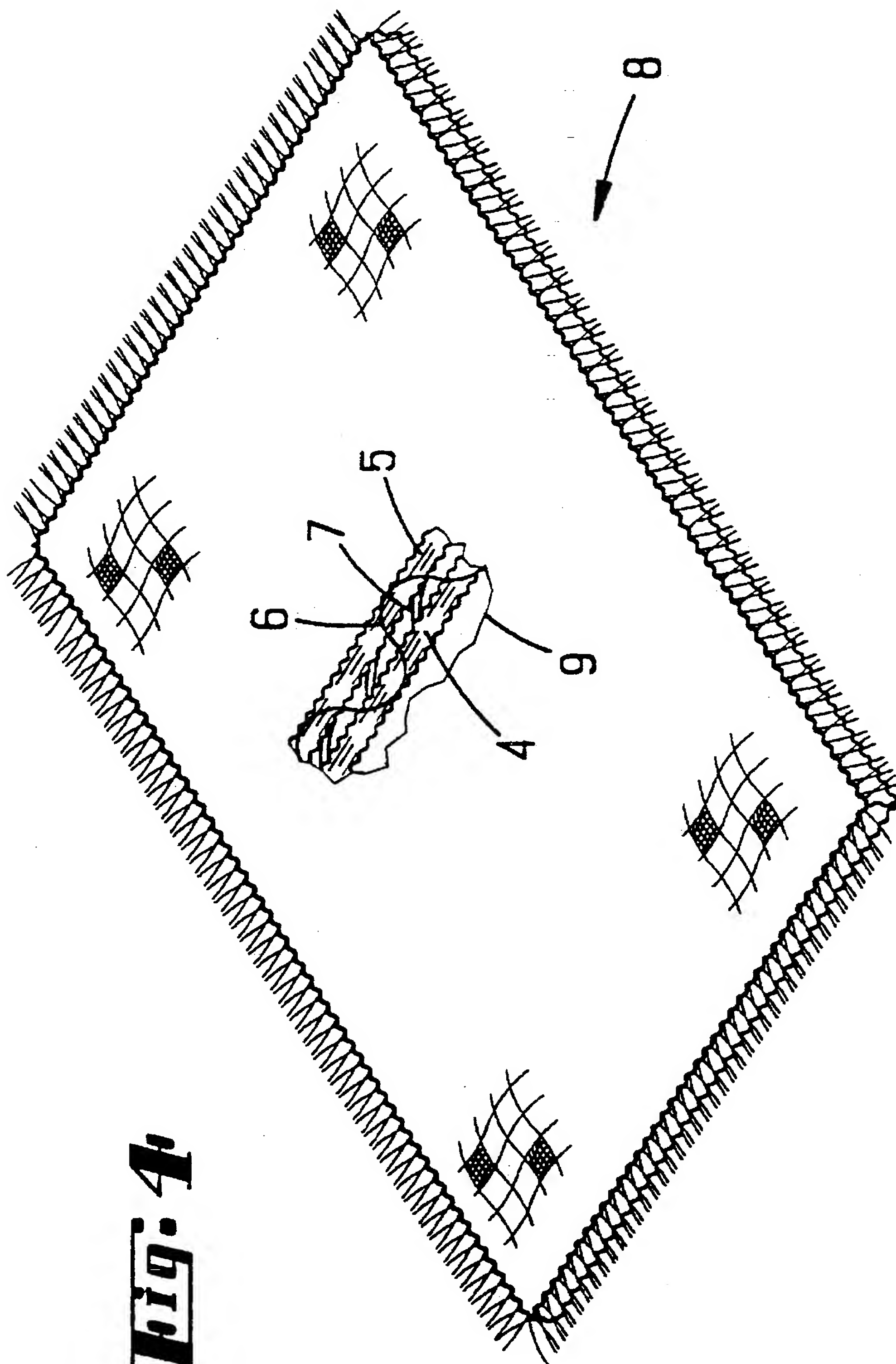
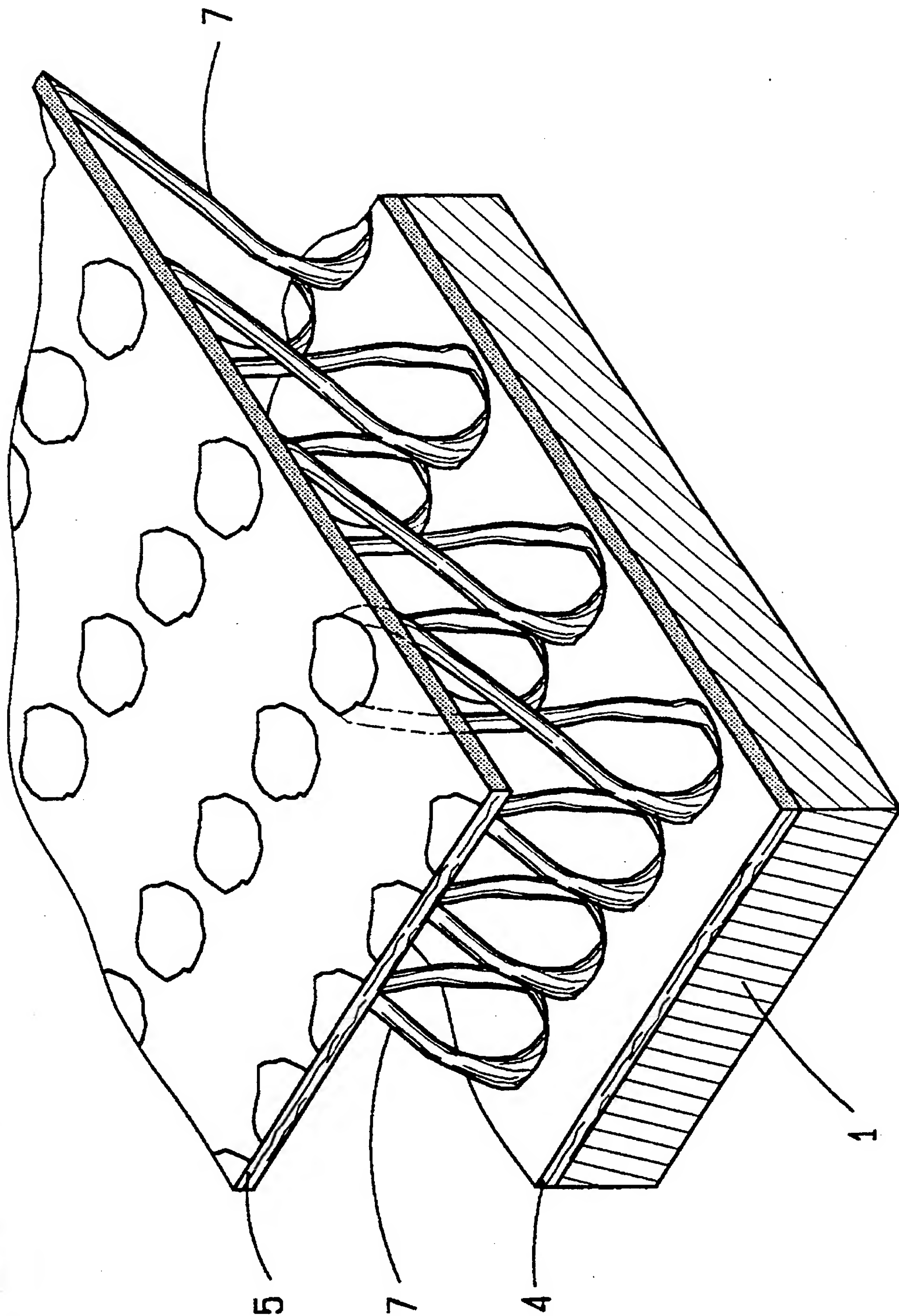


Fig. 4

Fig. 5



SPACING FABRIC

FIELD AND BACKGROUND OF THE INVENTION

This invention concerns a spacing fabric, in particular velour fabric, which spacing fabric has a first and second layer and intermediate webs connecting these layers and is made of a technical yarn like aramid fiber, carbon fiber, ceramic fiber, or, in particular, glass fiber, with a resetting force inherent in the intermediate webs which tends to automatically keep the layers of the spacing fabric apart, especially also after resinification.

For example, such a spacing fabric is known from European patent application EP-A3 0 299 308 (corresponding to U.S. Pat. No. 4,840,828) or rather is the basis for the structural component described there. In addition, German patent application DE-OS 38 13 741 is also referred to. If such a spacing fabric is impregnated to a specific extent with resin and, if necessary, excessive resin is subsequently squeezed out again, the intermediate webs are automatically and spontaneously reset, so that there is a space between the first and second layers.

Such spacing fabrics and structural components manufactured from them are already used in various applications. For example, hollow bodies are manufactured from them or, in particular, they are used to reinforce the internal or external walls of existing hollow bodies, for example tanks containing liquids. They are also used in the flooring industry.

In regard to reinforcement, the invention is useful, in particular, where only sections of a sheet metal plate or the like which is to be reinforced, are combined with the spacing fabric. However in this regard there is the danger that media, which can flow over the edge regions, for example water, oil, or also paint, can penetrate between the layers, so that the spacing fabric can become totally impregnated with the liquid. However, often this application of the free-flowing media occurs at a specific time during the treatment-fabrication of the sheet metal which is reinforced by the spacing fabric.

SUMMARY OF THE INVENTION

Based on the state of the art described above, one object of the invention is to provide a spacing fabric which, especially when used to reinforce flat structural components, for example sheet metal plates, provides the desired reinforcement of the sheet metal or other structural component to which it is applied, without the above-mentioned detrimental effects which occur upon a treatment with a liquid (an intermediate treatment) of the structural component as a result of its hollow body structure present in the hardened state.

This object of the invention is achieved by the layers of the spacing fabric being attached (held) to one another so that they can be detached (released). In accordance with the invention it has been found that the hollow body structure of a hardened, resinified structural component based on a spacing fabric, such as considered here, is only detrimental upon use if the spacing fabric is already present in the hollow body structure with the layers spaced from each other during the application of the liquid to the structural component. The liquid may be paint, for example. Due to the fact that in accordance with the invention the layers of the spacing fabric are detachably attached (held) to one another, the invention makes it possible, however, that at first the layers of the spacing fabric, i.e. during the application of the

liquid, lie on one another such that there is no hollow space between the layers which could become completely impregnated with liquid, for example, paint.

It is only after the application of the liquid is terminated, for example a coat of paint has been applied, that the resetting force of the intermediate webs is to be released (activated), i.e. the attachment between the layers of the spacing fabric is released (detached). In principle, many ways are suitable for this purpose. For example, one could proceed by installing metal parts in both layers of the spacing fabric, or at least the external layer, which makes it possible for example to draw (or if necessary also to press) the external layer magnetically to the internal layer, i.e. directly to the layer of the spacing fabric on the sheet metal plate. If the magnet were turned off, the resetting force of the intermediate webs would be released (activated) and the structure of the spacing fabric would adjust, holding to the reinforced structural component, for example a thin sheet metal plate.

The invention makes use of the well known strength of a rigid spacing fabric to provide dimensional stability to a workpiece, such as a metallic plate, by reinforcing the plate with the fabric. It is recognized by the invention that, in order to facilitate the manufacture of a reinforced object, be it a flat plate or a container such as a tank, it is desirable to secure the fabric to the workpiece while the layers of the fabric are still in a compact (attached) yet flexible form without hollow spaces therein, prior to the expansion of the fabric and hardening treatment of the fabric as by resinification, to attain its rigidity. The invention permits the use of the compact flexible fabric in the manufacturing process by constructing the fabric with pile or link threads which extend between a first layer and a second layer of the fabric. In accordance with a feature of the invention, the pile or link threads have an inherent spring (resetting) force which urges the two layers apart. Thereby, after the fabric has been located in a desired position relative to the workpiece and after any necessary application with a liquid e.g. paint, the attachment of the layers of the fabric is released so that the fabric expands under the influence of the spring force to space apart the two layers as required for a spacing fabric. The spring force is operative even in the presence of a resin disposed on the link fibers. After a curing of the resin, the link fibers retain the spaced apart relation of the two fabric layers. Initially, some form of holding mechanism is employed to hold the layers of the fabric in compact (attached) form, which holding mechanism is subsequently disabled to permit the expansion. For example, the holding mechanism may be a fusible thread which is destroyed by heating, or a stiff coating of resin which becomes flexible upon heating or the metal parts in the layers which can be attracted magnetically.

Within the framework of the invention it is preferred that the attachment of the layers of the spacing fabric to one another be released by the application of heat. In this case the production process is utilized in an appropriate manner especially during lacquering. First, the lacquer is applied to the part to be lacquered. Then, as a rule, in order to dry the color coat, the part is subjected to heat treatment in an oven, for example at temperatures above 100° C. As the lacquer still has a certain liquidity, or rather viscosity, before being put into the oven, the spacing fabric can easily restore itself to the desired form if as a result of the resulting application of heat in the oven the resetting forces of the intermediate webs are released (activated). Regarding the release of the attachment by means of the application of heat, there are also various possibilities in the technical design. For

example, the resin with which the spacing fabric is impregnated could itself be adapted in such a way that it is adhesively firm at room temperature but at a higher temperature, for example between 50° and 100° C., but in particular at temperatures above 100° C., it passes through a low viscosity state of reduced adhesiveness before it hardens at higher temperatures, in this example far above 50° to 100° C. (or it hardens as a result of being stored for a long period). Within the framework of the invention it is first preferred that the layers of the spacing fabric be attached or sewn to one another by means of a fusible thread. This has proven itself to be a measure which can be implemented advantageously in processing the spacing fabric efficiently insofar as the releasability of the attachment of the layers is concerned. For example, copolyamides and copolyesters are known as such fusible threads, also called hot melt yarn. In addition, fusible threads based on polyethylene monofilaments may also be used. The layers can be sewn to one another by means of the fusible threads or alternatively, can be pinned or tufted for example. As another alternative method of attaining the releasable attachment of the layers of the spacing fabric to one another, it is also possible to coat individual threads of the spacing fabric or threads separately inserted into the spacing fabric with a glue which loses or reduces its adhesion at a specific temperature. In this way, a customary resin suitable for resination and hardening could be used during resinification of the spacing fabric, but the attachment of the layers to one another is attained by means of separate adhesive threads which only need to be adjusted in such a way that they lose or greatly reduce their adhesiveness when a specific temperature is exceeded.

The invention also concerns a spacing fabric, as in the form of a prepreg spacing fabric preimpregnated with resin, which is formed in accordance with one of the individual measures explained above. As is known, prepreps are defined as sheets preimpregnated with hardenable synthetic resins which are processed to shaped parts or semi-finished products by means of hot pressing or, in any case, the application of heat. Reaction resin compounds based on epoxy resin, unsaturated polyester resins and, for example, polydiallylphthalate are primarily used as binders in this case. In principle, such resins can also be considered for the impregnation of the spacing fabrics of the invention. Prepreps manufactured in this way are kept in cold storage, preventing the setting and, therefore, hardening of the resin. For processing, the prefinished mats or other blanks are taken out of the cold storage area and, for example, rolled or laid on structural components, on which they harden at room temperature. This process can also be accelerated by the application of heat.

In addition, the invention also concerns a process to lacquer a thin structural component, for example a sheet metal plate, equipped with a reinforcing element. In order to avoid any undesired accumulation of paint, the invention provides that the structural component is combined with a self-resetting spacing fabric whose resetting force is cancelled, in a releasable manner so it can be activated, and that the resetting force of the intermediate webs of the spacing fabric is released (activated) by means of a subsequent heat treatment. The releasable attachment of the layers of the spacing fabric can be carried out in accordance with one of the measures described above.

BRIEF DESCRIPTION OF THE DRAWINGS

With the above and other advantages in view, the present invention will become more clearly understood in connec-

tion with the detailed description of preferred embodiments, when considered with the accompanying drawings, of which:

FIG. 1 is a diagrammatic illustration of a thin-walled sheet metal structural component which is combined on one side with a spacing fabric as a reinforcing element;

FIG. 1a is an enlarged detail of the portion A—A in FIG. 1 of the structural component combined with the spacing fabric, with the layers of the spacing fabric being attached to one another;

FIG. 1b is an illustration in accordance with FIG. 1a after the release (activation) of the resetting force of the intermediate webs of the spacing fabric;

FIG. 2 is a diagrammatic illustration of the spacing fabric combined with the structural component, with the layers being attached to one another;

FIG. 3 is an illustration in accordance with FIG. 2 after releasing the attachment of the layers to one another and hardening of the structural component;

FIG. 4 shows a spacing fabric with layers attached to one another so that they can be detached, illustrated diagrammatically as a prepreg; and

FIG. 5 is a diagrammatic perspective illustration of the structural component with combined spacing fabric in hardened form with the layers separated from one another.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

First, a thin-walled sheet metal structural component 1, on the basis of which the invention is explained, is illustrated and described in FIG. 1.

A spacing fabric 3 with layers 4, 5 attached to one another is applied, specifically glued, to the inside of the structural component 1 of a door 10 (see arrow).

The spacing fabric 3 is woven as velour fabric.

Furthermore, the spacing fabric is impregnated with a hardenable resin such that it resets itself if the attachment of the layers 4, 5 to one another is released and hardens with the layers 4, 5 being spaced a distance from one another as is illustrated diagrammatically in FIGS. 1b, 3, and 5.

The layers 4, 5 of the spacing fabric 3 woven from glass fiber in the illustrated embodiment are attached to one another by means of fusible threads 6. The fusible threads 6 are merely indicated diagrammatically. The illustration does not correspond to the course of fusible threads 6 such as results when the layers 4, 5 are sewn in or sewn up opposite to one another by means of these fusible threads 6. The individual fusible threads 6 comprise a so-called hot melt yarn based on copolyamides. It is also possible, however, to make these hot melt yarns on a copolyester or polyethylene monofilament basis.

The fusible threads 6 are released during the heat treatment regularly provided after the lacquering procedure in the production process of such structural components 1, so that the layers 4, 5 are no longer attached to one another. The intermediate webs 7 then reset themselves in the form evident in FIGS. 1b, 3, and 5 for example. For more details, reference is also made here to European patent application EP-A3 0 299 308 (corresponding to U.S. Pat. No. 4,840,828) already mentioned at the beginning, whose disclosure contents are also included totally in the disclosure of this application, thereby being incorporated by reference herein.

The illustration of the intermediate webs 7 in FIG. 2 is only to be understood as purely diagrammatic. In fact, in a

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real design, layers 4, 5 are considerably closer to one another or lie on one another as a result of the attachment produced by the fusible threads 6. It is only for illustrative purposes that a certain space has been left here between the layers 4, 5.

A spacing fabric, based on a prepreg 8, is illustrated in FIG. 4 in a diagrammatic manner. The opening 9 shows that the prepreg comprises two (in any case at least two) layers 4, 5 of a spacing fabric which lie on top of one another and which are attached to one another by means of fusible threads 6 in such a way that the resetting force of the intermediate webs or pile threads 7 is cancelled and is only released (activated) after the fusible threads are released in such a way that the intermediate webs 7 straighten up producing a space between the layers 4, 5.

As is shown especially in the illustrations in FIGS. 3 and 5, in the hardened state there is a three-layer sandwich-like composite of the structural component 1, layer 4, and layer 5 of the spacing fabric with the interposition of the intermediate webs 7. As the layer 4 is bound by means of a firmly adhering industrial glue which hardens at room temperature, an undetachable composite and a statically highly deflection-resistant sandwich structure is created. This is assisted by the twisting of the individual intermediate webs 7 and the attachment of the threads, which the intermediate webs 7 form in a middle range for example, through their figure-eight structure. For more details, reference is made once again to EP-A3 0 299 308 referred to above.

We claim:

1. A spacing fabric made of fibers selected from the group consisting of aramid fibers, carbon fibers, ceramic fibers and glass fibers; the spacing fabric comprising:

a first fabric layer and a second fabric layer;

a plurality of intermediate links of technical yarn extending from said first layer to said second layer, each of said links having a spring force for holding said second layer spaced apart from said first layer;

wherein said fabric is resinified with a heat hardenable resin and holding means are provided which overcome said spring force so that said second layer is held on said first layer with the resin in an uncured state such that said first and second layers are contacting; and

wherein said holding means is temperature sensitive such that, upon a raising of temperature of the spacing fabric, said holding means is disabled allowing said second layer to separate into a spaced apart relation from said first layer in response to the spring force of the intermediate links, said raising of the temperature and a subsequent lowering of the temperature being operative to cure said resin for maintaining said first and said second layer in the spaced apart relation.

2. The spacing fabric in accordance with claim 1, wherein said holding means provides for attachment of said first

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layer to said second layer, and the attachment of said first and said second layers is releasable by the application of heat.

3. The spacing fabric in accordance with claim 1, wherein said holding means comprises a fusible thread.

4. The spacing fabric in accordance with claim 3, wherein said first and said second layers are pinned to one another by means of said fusible thread.

5. The spacing fabric in accordance with claim 1, wherein said holding means comprises an adhesive coated to individual threads of the spacing fabric or threads inserted into the spacing fabric and having an adhesiveness which disappears totally or is reduced at a specific temperature.

6. The spacing fabric in accordance with claim 1, wherein said holding means includes said resin with which the spacing fabric is totally impregnated, said resin releases the spring force of said intermediate links in a state of reduced adhesiveness occurring prior to a hardening of said resin, and upon an increase of temperature.

7. The spacing fabric according to claim 1, wherein the fabric is in the form of a prepreg with a spacing fabric preimpregnated with resin.

8. The spacing fabric in accordance with claim 1, wherein said holding means comprises a fusible thread, and said first and said second layers are sewn to one another by means of said fusible thread.

9. The spacing fabric in accordance with claim 1, wherein said holding means comprises a fusible thread, and said first and said second layers are tufted to one another by means of said fusible thread.

10. A spacing fabric made of fibers selected from the group consisting of aramid fibers, carbon fibers, ceramic fibers and glass fibers; the spacing fabric comprising:

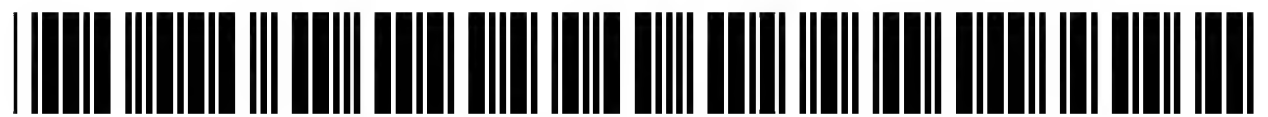
a first fabric layer and a second fabric layer;

a plurality of intermediate links of technical yarn extending from said first layer to said second layer, each of said links having a spring force for holding said second layer spaced apart from said first layer, said fabric being resinified with a heat hardenable resin;

holding means that overcome said spring force and hold said second layer in contact with said first layer during an uncured state of said resin; and

wherein said holding means is temperature sensitive such that, upon a raising of temperature of the spacing fabric, said holding means is disabled allowing said second layer to separate into a spaced apart relation from said first layer in response to the spring force of the intermediate links, said raising of the temperature being operative to cure said resin for maintaining said first and said second layer in the spaced apart relation.

* * * * *



US005860174A

United States Patent [19]

Failor

[11] **Patent Number:** **5,860,174**

[45] **Date of Patent:** **Jan. 19, 1999**

[54] **PATIENT TRANSFER MATTRESS SYSTEM**

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[21] Appl. No.: **760,149**

[22] Filed: **Dec. 3, 1996**

[51] **Int. Cl.⁶** **A61G 7/10**

[52] **U.S. Cl.** **5/81.1 HS; 5/703; 5/723; 5/737; 5/922; 5/926**

[58] **Field of Search** **5/81.1 RP, 81.1 T, 5/690, 691, 703, 705, 722, 723, 737, 738, 922, 925, 926, 411, 655.9, 736, 740, 81.1 HS**

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Primary Examiner—Michael F. Trettel

Assistant Examiner—Robert G. Santos

Attorney, Agent, or Firm—Hoffmann & Baron, LLP

[57] **ABSTRACT**

A mattress assembly including a bottom mattress section and a top, transfer mattress section is provided. The transfer mattress section includes lateral flaps which are coupled to the sides of the bottom mattress section by hook and loop type fasteners. Pull straps are secured to the flaps for moving the transfer mattress section, and a patient thereon, with respect to the bottom mattress section once the fasteners have been disengaged. The interface of the top and bottom mattress sections is low friction to facilitate sliding the top mattress section with respect to the bottom mattress section.

26 Claims, 8 Drawing Sheets

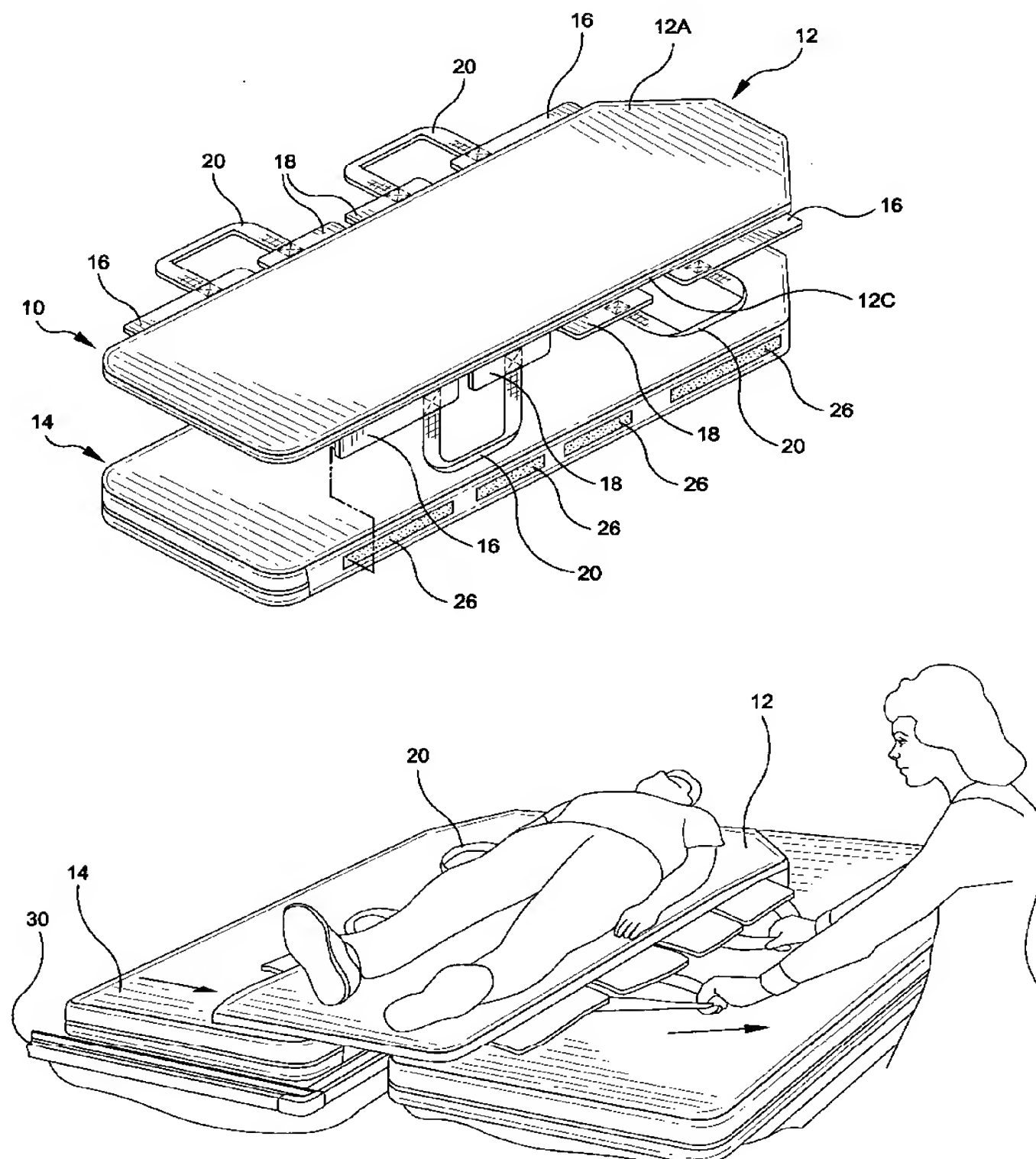
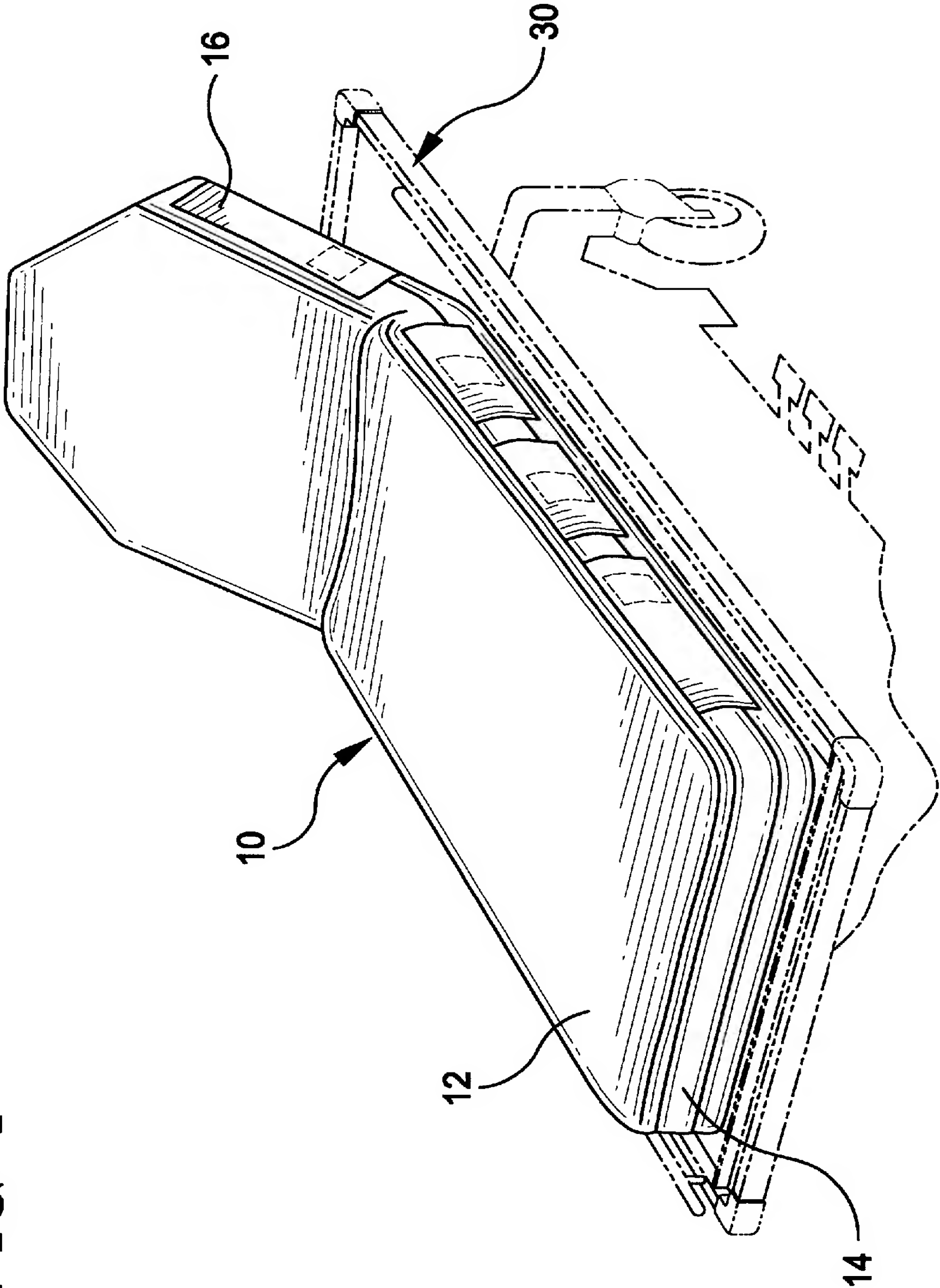
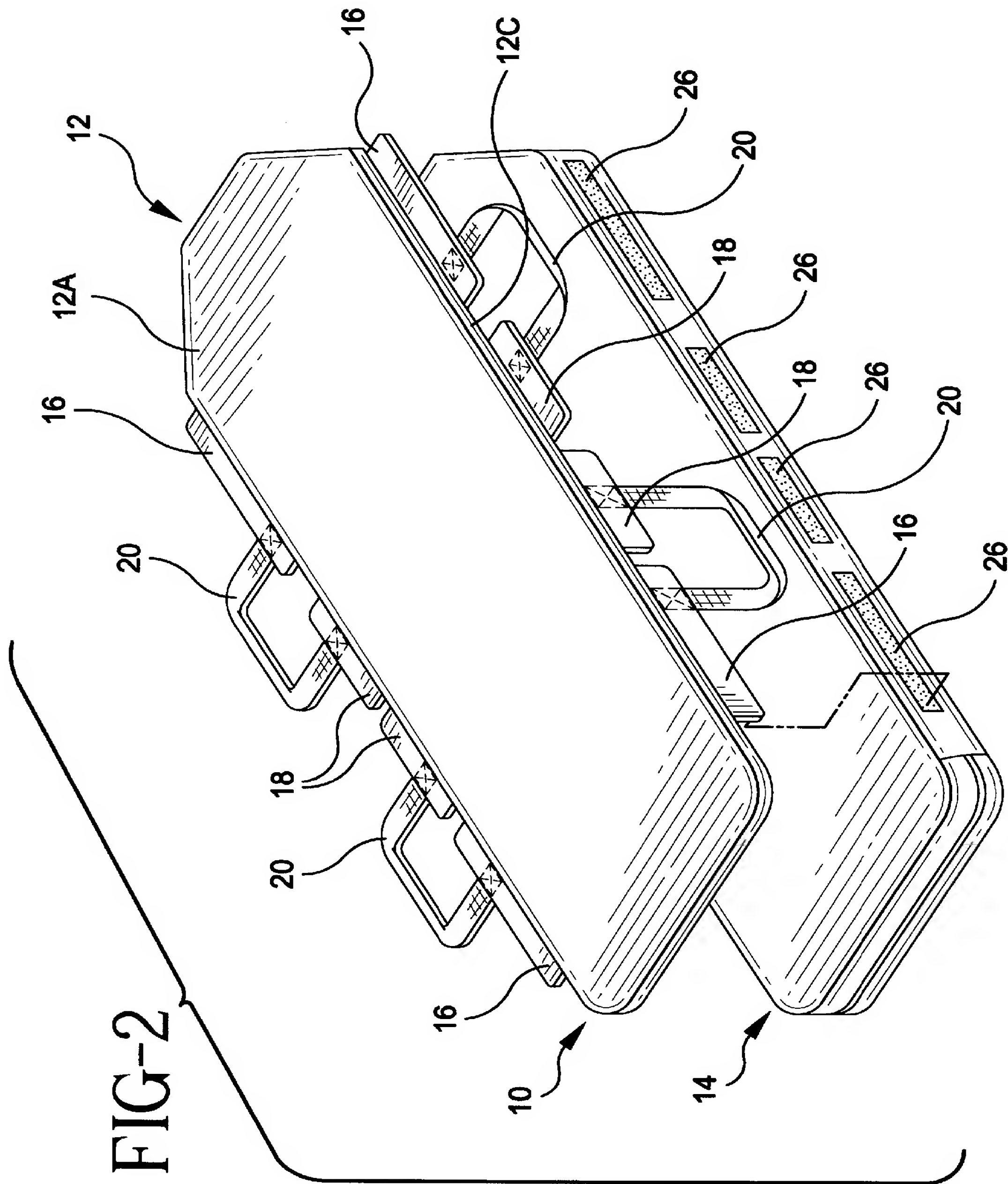


FIG-1





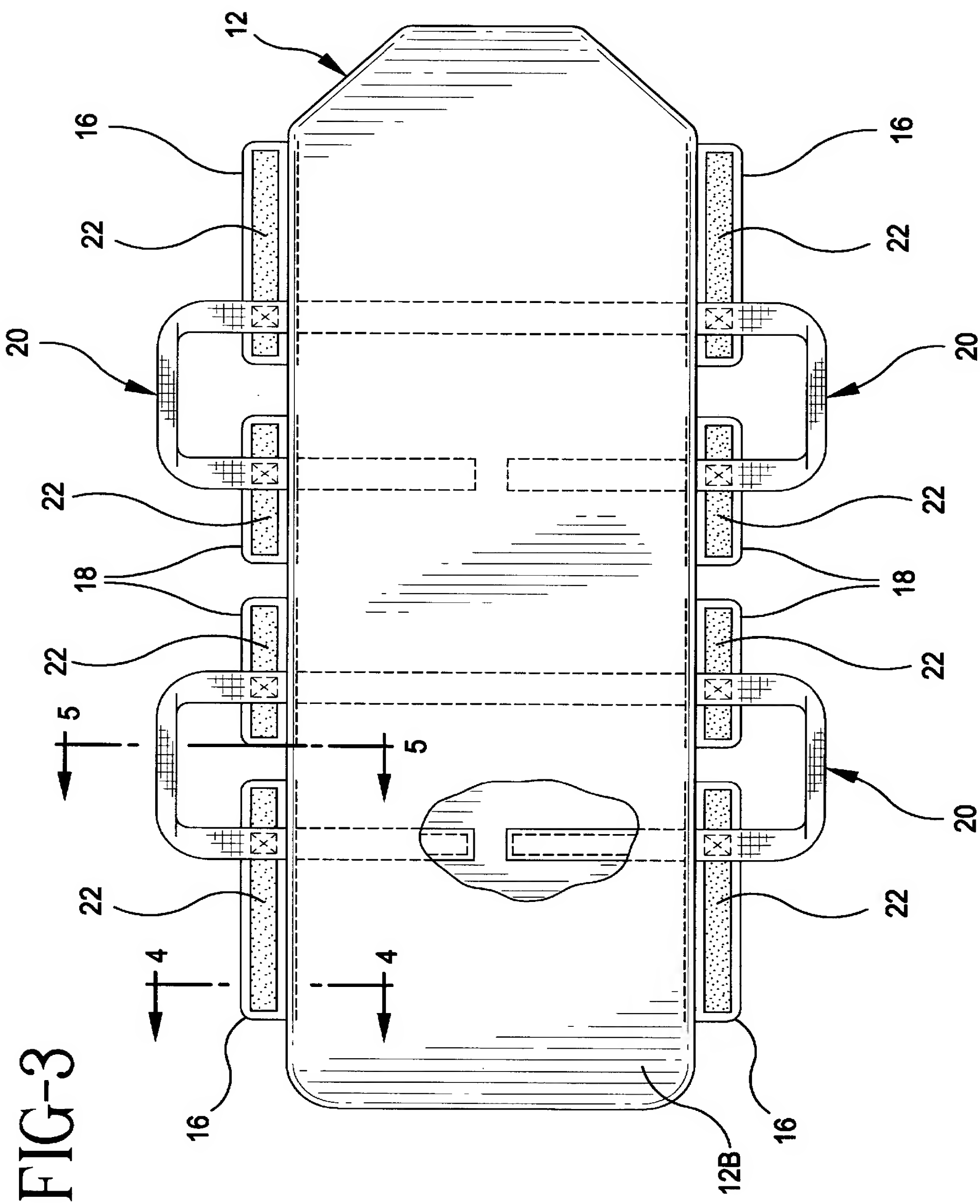


FIG-4

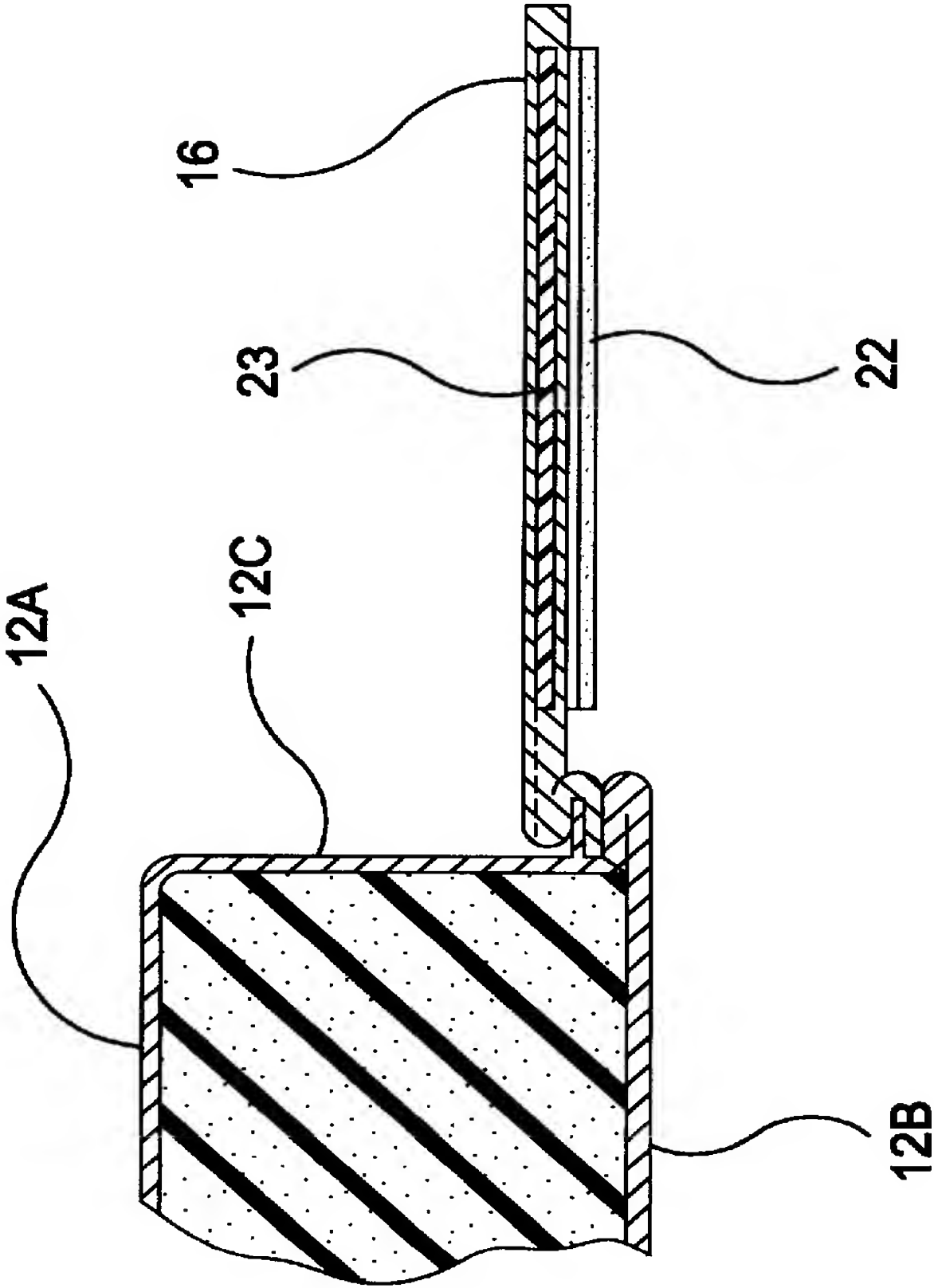


FIG-5

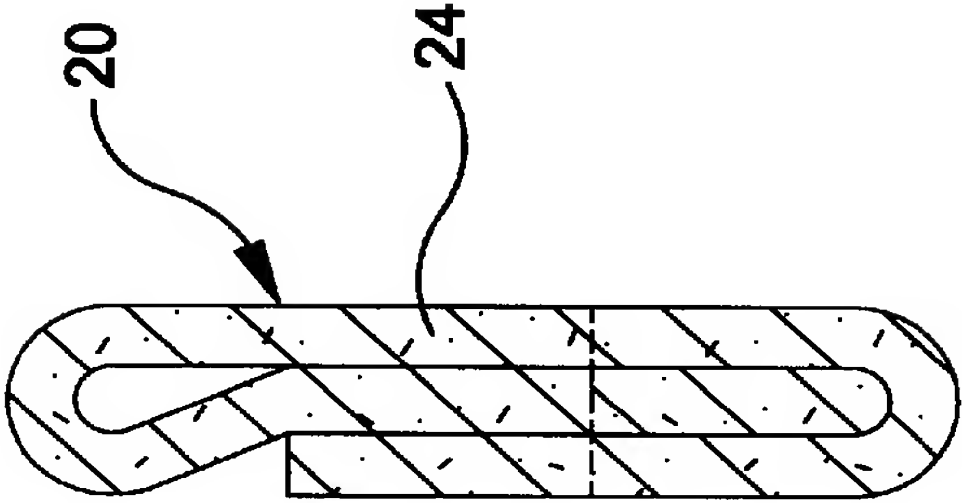


FIG-6

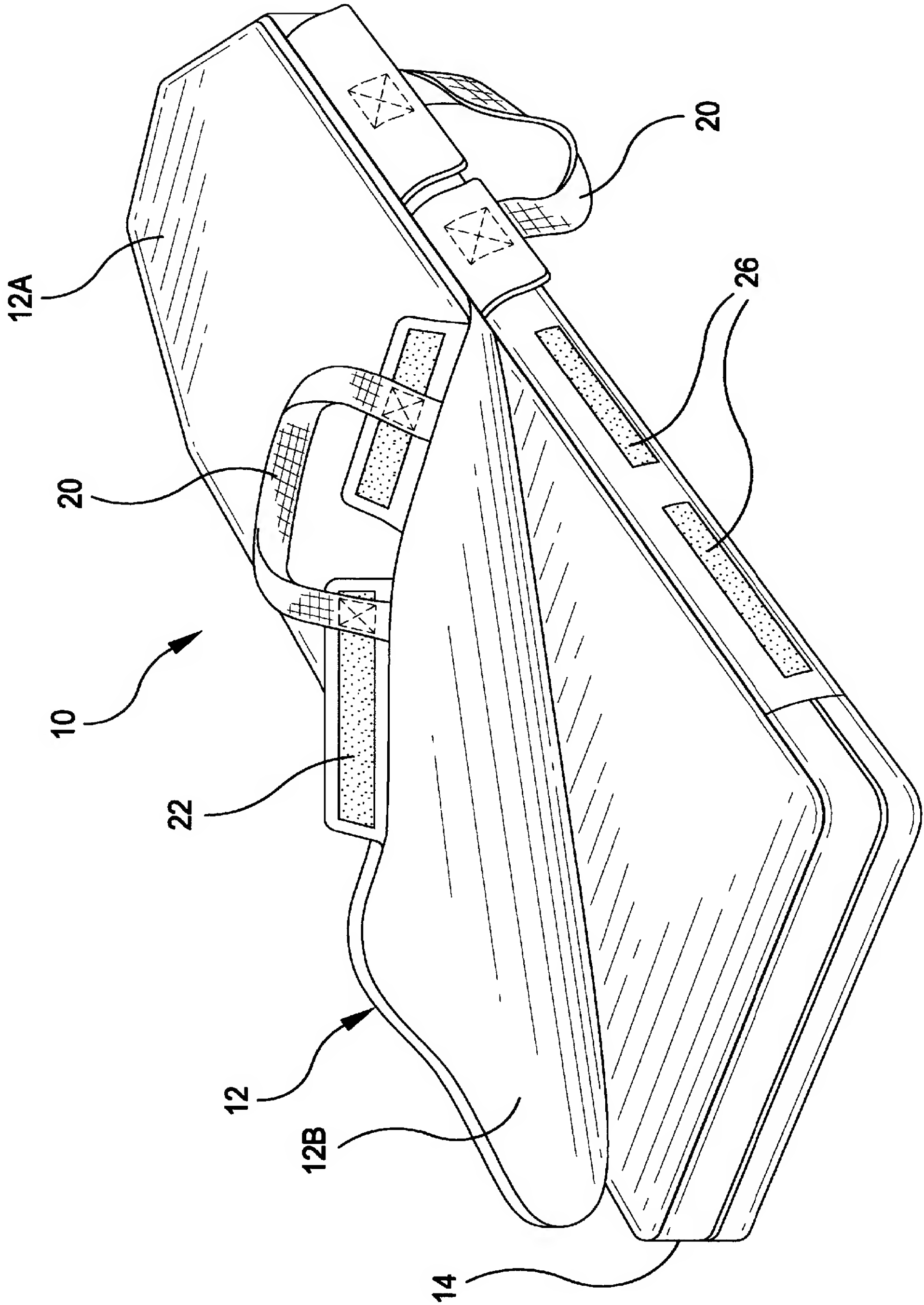


FIG-7



FIG-8

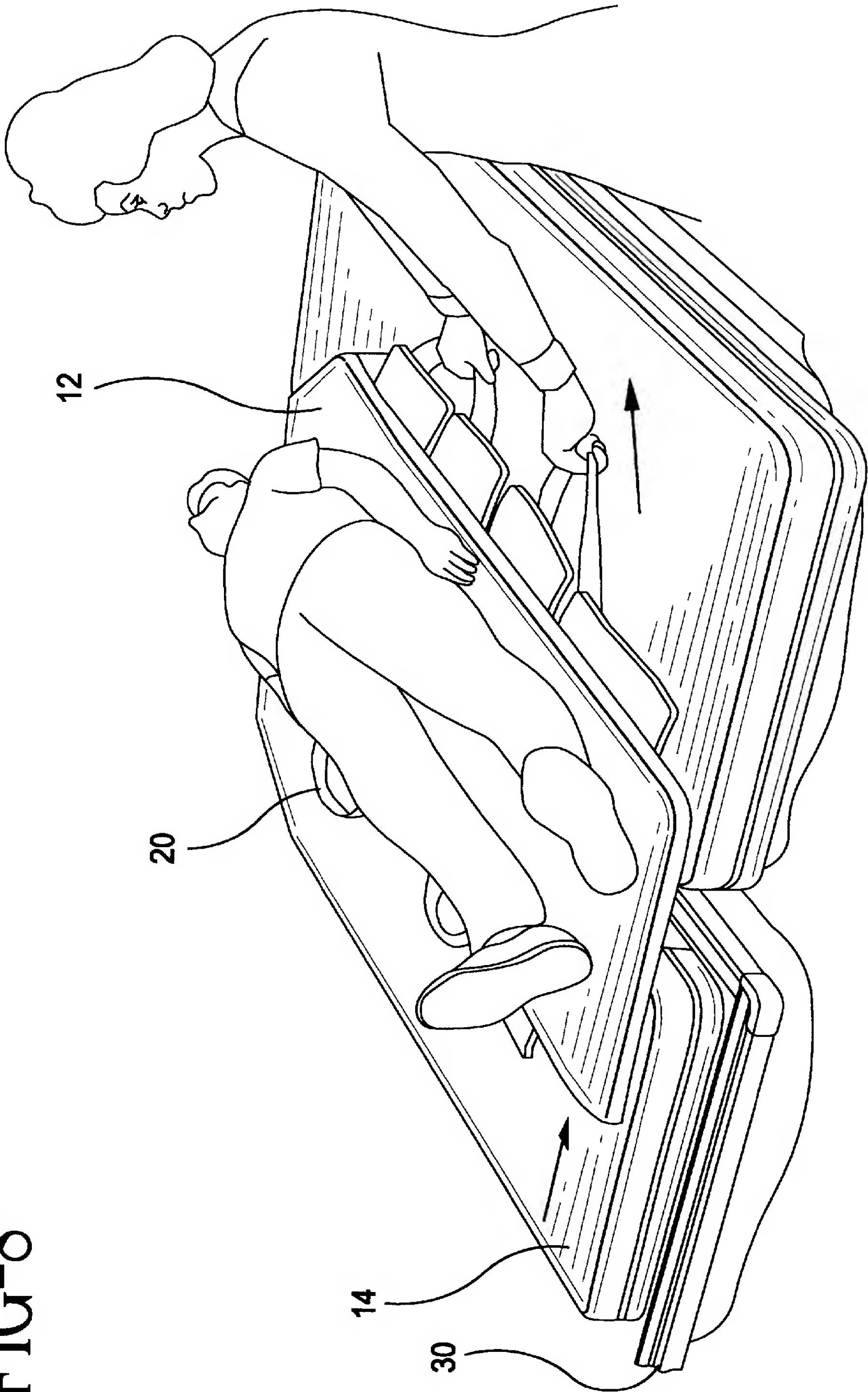
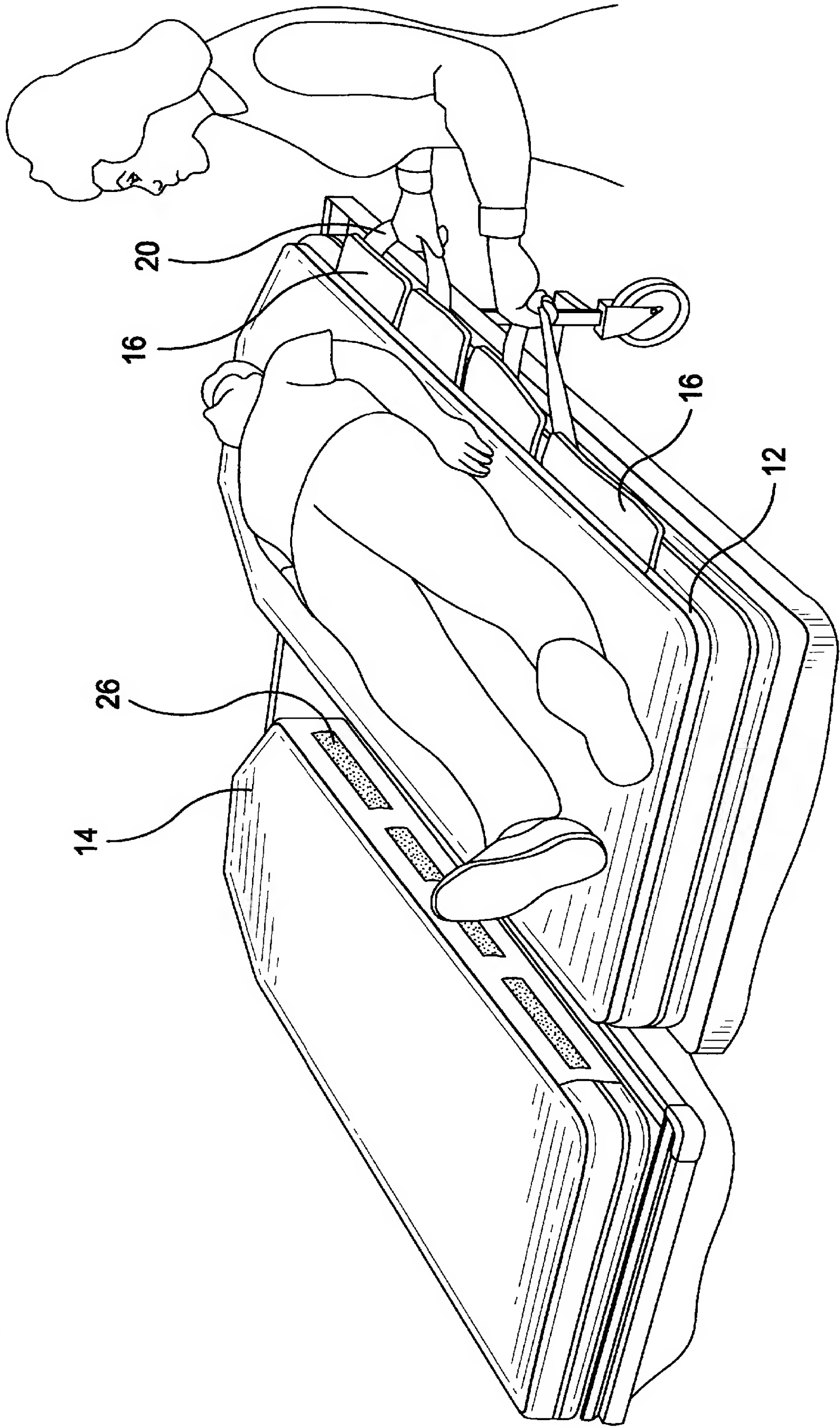


FIG-9



PATIENT TRANSFER MATTRESS SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention.

The field of the invention relates to patient transfer assemblies for transferring patients from hospital beds, stretchers or the like to other supports.

2. Brief Description of the Prior Art.

The difficulty of moving a patient from one support, such as a stretcher, to another is well recognized. Various systems have accordingly been designed for transferring patients without actually first lifting them.

One such system is disclosed in U.S. Pat. No. 4,970,738. This system includes a semi-rigid transfer apron and a mattress attached to the transfer apron. Low friction belts are attached to the transfer apron and to an endless belt. A crank is employed to rotate the endless belts, causing the transfer apron to be translated laterally across a rigid support.

U.S. Pat. No. 4,796,313 and U.S. Pat. No. 4,819,283 disclose transfer mechanisms including transfer sheets wound upon rollers. The patient is transported longitudinally as opposed to laterally.

U.S. Pat. No. 5,329,655 discloses a method for turning or transferring a patient which includes the use of a bed sheet having a bottom surface characterized by low frictional drag and a top surface having higher frictional drag. The sheet is ordinarily tucked under a mattress to maintain it in place.

U.S. Pat. No. 3,829,914 discloses a sheet including a slippery bottom surface and handles. The sheet is used for positioning a patient upon a mattress.

WO 94/2002 discloses a sheet including gripping strips for shifting a patient from one bed to another. The sheet is positioned on a mat conveyor to effect transfer.

SUMMARY OF THE INVENTION

A patient transfer mattress assembly is provided which includes a bottom mattress section and a top mattress section. The top mattress section functions as a transfer mattress.

The bottom mattress section includes one or more first fasteners, preferably in the form of hook fasteners, capable of engagement with loop-type fasteners. The top mattress section preferably conforms to the shape of the top surface of the bottom mattress section. It includes one or more second fasteners which are releasably engageable with the first fasteners on the bottom mattress section. One or more handles are coupled to the top mattress section for allowing it to be pulled across the bottom mattress section.

The interface between the top and bottom mattress sections exhibits low frictional drag to facilitate sliding the top mattress section with respect to the bottom mattress section. Such low frictional drag is preferably accomplished by providing a low friction bottom surface on the top mattress section.

In a preferred embodiment of the invention, the transfer mattress includes a generally flat, resilient body including a low friction bottom surface. A plurality of flaps are connected to the body, and extend laterally therefrom. Fasteners are provided on each of the flaps. Handles are coupled to the body, preferably by the flaps.

The mattress assembly functions as an ordinary mattress on a stretcher or other support until transfer of a patient is to be effected. A second patient support, such as a bed or x-ray table, is then moved into adjoining relation to the stretcher

or other support. The laterally extending flaps of the top mattress section are disengaged from the first fasteners on the bottom mattress section. The handles are then grasped, and the top mattress section pulled laterally with respect to the bottom mattress section onto another support. The patient may then be rolled on his side, and the top mattress section removed and recoupled to the bottom mattress section. Alternatively, the patient can remain on the top mattress section while positioned on the new support as it provides sufficient cushioning for patient comfort.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of a mattress assembly according to the invention;

FIG. 2 is an exploded, perspective view thereof;

FIG. 3 is a bottom plan view of a top mattress section of the mattress assembly;

FIG. 4 is a sectional view thereof taken along line 4—4 of FIG. 3;

FIG. 5 is a sectional view of a handle taken along line 5—5 of FIG. 3;

FIG. 6 is a top perspective view of the mattress assembly showing the top mattress section partially uncoupled therefrom;

FIG. 7 is a perspective view showing the top mattress section as uncoupled from a bottom mattress section, thereby allowing the transfer of a patient to a second support;

FIG. 8 is a perspective view showing the transfer of a patient from one support to another; and

FIG. 9 is a perspective view showing the patient transferred to another support from the mattress assembly.

DETAILED DESCRIPTION OF THE INVENTION

A mattress assembly **10** is provided for facilitating the transfer of a patient from a first support, such as a stretcher, to a second support, such as an x-ray table. The assembly is designed so that such transfer can be accomplished in a manner which is safe for both the patient and attending staff. It is also designed for use with most stretchers or carts, regardless of manufacturer.

The mattress assembly **10** includes a top mattress section **12** and a bottom mattress section **14**. Both mattress sections are preferably of the type including a foam core encased by a conductive cover. The foam may be urethane having a density of 40–45 ILD for the top section and about 35 ILD for the bottom section. The top section preferably has a thickness of about one inch, while the thickness of the bottom section is two to three inches.

In order to minimize static electricity, the covers of both mattress sections are conductive. The top mattress section includes a top surface **12A**, a bottom surface **12B**, and a plurality of side surfaces **12C**. The cover of the top mattress section is preferably comprised of STAPHCHEK LECTROLITE COMFORT fabric at the top and sides. The trademarks STAPHCHEK and LECTROLITE are owned by Heculite Protective Fabrics Corp., and describe an electrically conductive, fire resistant fabric recommended for use on mattresses and pads in operating rooms and other potentially hazardous locations. The bottom of the cover, which is designed to provide much less friction than the top, is preferably comprised of a 0.010 thick cotton/poly fabric sold under the trade name CHEMLAM® 700. CHEMLAM 700

is a trademark of Chemfab Corporation, and refers to a multi-layer static dissipative fluoropolymer film with a filly sintered PTFE (TEFLON) surface for low friction, chemical and flame resistance, and barrier properties, laminated to a flexible cotton/polyester fabric substrate.

The cover of the bottom mattress section may be STAPH-CHEK LECTROLITE COMFORT fabric on the top and sides, while the bottom is LECTROLITE DUOTONE fabric. The length and width dimensions of the top and bottom mattress sections are substantially the same. Maximum length may be about seventy-six inches, while maximum width is about 24–25 inches.

The top mattress section **12** is constructed to function as a transfer mattress. Two pairs of flaps **16, 18** extend laterally therefrom, and two pairs of handles **20** are secured to the respective pairs of flaps. Each flap **16, 18** is stitched to the cover. The side and bottom cover portions are hemmed together two times, and the flaps are secured at the hems. (There are no seams at the top of the mattress section). Each pair of flaps includes a relatively long flap **16** near an end of the top mattress section, and a relatively short flap **18** near the center thereof. The longer flaps may, for example, be about sixteen inches in length while the shorter flaps have a length of about ten inches. The width of each flap may be about 2% inches. Spaces are provided between the flaps at the points the top mattress section can be expected to articulate.

A strip of pile fabric **22**, preferably about two inches in width, is sewn to each flap. The pile fabric, preferably VELCRO loop fabric, serves as a fastener for securing the top mattress section to the bottom mattress section. In order to provide rigidity, each flap preferably includes a plastic liner **23** encased within a conductive fabric cover. The flaps are accordingly semi-rigid.

The handles **20** are preferably formed from two inch wide nylon straps **24** which are folded twice and stitched at selected portions to provide hand grips. The remaining portions of each strap forms a substantially endless loop. The straps are sewn to the flaps and to the inside of the bottom cover.

The bottom mattress section **14** includes four strips of hook-type fasteners **26** secured to each side thereof, preferably by stitching. The two inner strips may be about one by eight inches, and the two outer strips about one by fourteen inches when used with a top mattress section having pile sections as described above. The flaps **16,18** will accordingly cover the hook-type fasteners **26** completely when the top mattress is secured to the bottom mattress section by engagement of the respective fasteners **22,26**. The bottom side of the bottom mattress section may include a pair of VELCRO pile strips (now shown) stitched thereto. The strips extend along the center line of the bottom side, and may each be about two inches wide and twelve inches in length.

The mattress assembly **10** may be employed upon any support from which a patient may require transport, such as a stretcher **30** shown in phantom lines in FIG. **1**. The support preferably includes strips of VELCRO hook fabric for engaging the corresponding pile strips of the bottom mattress section.

In order to transfer a patient, the stretcher is moved into adjoining position with the support (e.g. a bed or table) to which the patient is to be transferred. This step is shown in FIG. **7**. The four side flaps **16,18** are pulled up, thereby disconnecting the fasteners **22,26**. The handles **20** adjoining the support next to the stretcher are grasped. The top

mattress section is then slowly pulled until the patient is in the desired position on the support, as shown in FIGS. **8** and **9**.

If the patient is transferred to a support such as a hospital bed, he is rolled on his side onto the bed surface, and the top mattress section is moved back upon the bottom mattress section **14**, which remains on the stretcher. If the patient is transferred to an x-ray table or the like, he may remain on the top mattress section for the duration of the procedure to be conducted thereon. As such tables ordinarily have hard surfaces, the top mattress section provides the cushioning which would otherwise be lacking. The radiolucency of the top mattress section ensures that the test procedure is not compromised. Once the procedure is completed, the patient could easily be transferred back to the stretcher by sliding the top mattress section back upon the bottom mattress section. The side flaps **16,18** would then be pressed against the sides of the bottom mattress section, causing re-engagement of the fasteners.

The mattress assembly as described above ensures patient comfort when used as a two-piece mattress. It enables patient transfer by one individual in a safe and effective manner. Patient comfort is maintained as lifting is not required. The potential for attendant back injury is also reduced in the absence of the necessity for patient lifting.

While a number of specific dimensions are described above, the mattress assembly can be made to any size, length or width. It can accordingly be made to fit any stretcher, bed, ambulance cart, reclining chair or other support.

What is claimed is:

1. A mattress assembly comprising:
 - a bottom mattress section including a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces;
 - at least one first fastener mounted to said bottom mattress section;
 - a top mattress section including a resilient body, a cover encasing said resilient body and including a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces of said cover, said bottom surface of said cover at least generally conforming to the shape of said top surface of said bottom mattress section;
 - at least one second fastener mounted to said top mattress section, said second fastener and said first fastener being releasably engageable to releasably secure said top mattress section to said bottom mattress section;
 - said bottom surface of said cover of said top mattress section exhibiting substantially less friction than said top surface of said cover to facilitate sliding said top mattress section with respect to said bottom mattress section, and
 - a handle secured to said top mattress section.
2. A mattress assembly as described in claim 1 wherein said bottom surface of said cover is substantially entirely slippery.
3. A mattress assembly as described in claim 2 wherein said bottom surface of said cover is comprised of a multi-layer static dissipative fluoropolymer film with PTFE surface.
4. A mattress assembly as described in claim 1 wherein said top mattress section includes a plurality of laterally extending flaps, each of said flaps including a second fastener, said bottom mattress section including a plurality of first fasteners engageable, respectively, with said second fasteners.

5

5. A mattress assembly as described in claim 4 including a handle secured to each of said flaps.

6. A mattress assembly as described in claim 5 including at least two pairs of flaps extending laterally from said top mattress section, said handles being pull straps connected, respectively, to adjacent pairs of said flaps.

7. A mattress assembly as described in claim 4 wherein said first and second fasteners are hook and loop type fasteners, respectively.

8. A mattress assembly as described in claim 1 wherein said top mattress section is comprised of a foam body and said cover is comprised of a conductive fabric.

9. A mattress assembly as described in claim 8 wherein said bottom mattress section is comprised of a foam body covered with a conductive fabric.

10. A mattress assembly as described in claim 9 including a plurality of semi-rigid flaps extending laterally from said top mattress section, said flaps each including a second fastener, said side surfaces of said bottom mattress section including a plurality of first fasteners engageable, respectively, with said second fasteners.

11. A mattress assembly as described in claim 1 wherein said top mattress section is about one inch thick and said bottom mattress section is between about two and three inches thick.

12. A mattress assembly comprising:

a resilient bottom mattress section including a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces,

a plurality of first fasteners mounted to said bottom mattress section;

a resilient top mattress section including a resilient body covered with a conductive fabric cover and having a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces of said top mattress section;

a plurality of flaps extending laterally from said top mattress section, each of said flaps including second fasteners engageable with said first fasteners, and

a plurality of handles extending laterally from said top mattress section, each of said handles being comprised of an elongated strap including first and second portions extending within said cover and beneath said resilient body, said first and second strap portions being secured to said cover, each of said straps including a third portion forming a loop extending outside said cover.

13. A mattress assembly as described in claim 12 wherein said top mattress section includes a foam body covered with a conductive fabric, at least one of said bottom surface of said top mattress section and said top surface of said bottom mattress section being slippery to facilitate sliding said top mattress section with respect to said bottom mattress section, and said flaps are semi-rigid.

14. A mattress assembly as described in claim 13 wherein each of said handles is coupled to at least one of said flaps.

15. A mattress assembly as described in claim 13 wherein said first fasteners are mounted to said side surfaces of said bottom mattress section, and said bottom surface of said top mattress section includes a fluoropolymer film having PTFE.

16. A mattress assembly as described in claim 13 wherein said first and second fasteners are hook and loop type fasteners, respectively.

17. A mattress assembly as described in claim 12 wherein said top mattress section is about one inch thick and said bottom mattress section is between about two and three inches thick.

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18. A transfer mattress for transferring a patient from a first support to a second support comprising:

a generally flat, resilient body including a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces;

a cover encasing said generally flat, resilient body, said cover including a bottom surface and a top surface, said bottom surface of said cover exhibiting substantially less friction than said top surface of said cover to facilitate sliding said generally flat, resilient body with respect to a second body;

a plurality of flaps extending laterally from said body, each of said flaps including a fastener for fastening said body to a second body, and

a plurality of handles coupled to said body.

19. A transfer mattress as described in claim 18 wherein said body includes a foam core and said cover encasing said core is conductive, said flaps being semi-rigid and pivotably secured to said cover.

20. A transfer mattress as described in claim 18 wherein said bottom surface of said cover is comprised of a multi-layer static dissipative fluoropolymer film with a PTFE surface.

21. A transfer mattress as described in claim 19 wherein each of said handles is a pull strap coupled to a pair of adjacent flaps.

22. A transfer mattress as described in claim 18 wherein said body is radiotranslucent.

23. A transfer mattress as described in claim 18 wherein the thickness of said generally flat, resilient body with said cover is about one inch thick.

24. A transfer mattress as described in claim 18 wherein said handles are comprised of straps sewn to said flaps and to said cover, portions of said straps extending within said cover below said bottom surface of said generally flat, resilient body.

25. A mattress assembly comprising:

a bottom mattress section including a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces;

a plurality of first fasteners mounted to said bottom mattress section;

a top mattress section including a top surface, a bottom surface, a plurality of side surfaces extending between said top and bottom surfaces of said top mattress section, said bottom surface of said top mattress section at least generally conforming to the shape of said top surface of said bottom mattress section, and at least two pairs of laterally extending flaps;

at least one second fastener mounted to each of said laterally extending flaps, said second fasteners and said first fasteners being releasably engageable to releasably secure said top mattress section to said bottom mattress section;

at least one of said bottom surface of said top mattress section and said top surface of said bottom mattress section being a slippery surface to facilitate sliding said top mattress section with respect to said bottom mattress section, and

a plurality of handles, each handle being secured to adjacent pairs of said flaps of said top mattress section.

26. A transfer mattress for transferring a patient from a first support to a second support, comprising:

a generally flat, resilient body comprising a foam core and a conductive cover encasing said core, and further

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including a top surface, a bottom surface, and a plurality of side surfaces extending between said top and bottom surfaces, said bottom surface being slippery to facilitate sliding said generally flat resilient body along a surface of a second body;
a plurality of semi-rigid flaps extending laterally from said body and pivotably secured to said cover, each of

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said flaps including a fastener for fastening said body to a second body, and
a plurality of handles coupled to said body, each of said handles being a pull strap coupled to a pair of adjacent flaps.

* * * * *

Rescue underlay for mattresses

The invention relates to a rescue underlay for mattresses with the features of the introductory part of claim 1.

5

Rescue underlays for mattresses of the usual kind have a double function. On the one hand such a rescue underlay is, by its underlay mat, a mattress protective cover for pressure relief of the mattress at the underside. On the other hand, the rescue underlay serves in the event of a catastrophe for rapid evacuation of a reclining patient. This applies to hospitals,

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Rescue underlays of the usual kind are, as a precaution, kept in hand under mattresses in order in the case of a catastrophe to fix the reclining patient on the mattress to be lying down and to then be able to pull the mattress on the rescue underlay over the ground. A single person can then rescue a patient, whereas in the case of use of stretchers or the like at least two persons are required per rescued person.

15

The rescue underlay from which the invention proceeds (DE 88 14 414 U1) comprises an underlay mat of a reticular or gridlike woven fabric of plastic, to which a pull loop of a plastic woven fabric strip for pulling the underlay mat inclusive of mattress and patient is attached at one end. Patient securing belts, which have connecting elements at both ends for closing the patient securing belts, are attached to the longitudinal sides of the underlay mat. In the case of the previously explained prior art these connecting elements are simple loops; other prior art mentions Velcro connections (US 4 124 908 A) and quick-action clamping locks or quick release buckles (GB 1 434 832 A).

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The known rescue underlays have already proved themselves in the respect that a patient lying on the mattress and secured and held by the patient securing belts under his cover can be drawn in problem-free manner over the ground by a helper by means of the pull loops. Even pulling in stairwells has proved possible, so that such a rescue underlay in fact offers a considerable advantage in emergency situations.

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It is already known to provide a rescue underlay of the conventional kind with additional, cushioning support wedges, particularly at the head end, at the foot end and in the middle region, which are arranged under the mattress and are to prevent slipping of the patient on the mattress (WO 00/74785 A1).

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It has proved that the known rescue underlays for mattresses still present a need for improvement in handling.

40

The teaching of the present invention solves the previously outlined problem, in the case of a rescue underlay for mattresses with the features of the introductory part of claim 1, by the features of the characterising part of claim 1.

According to the invention the plastic flat material, which forms the rectangular underlay mat, is not simply a plastic woven fabric or plastic net material, but a flat material providing a spring travel. In other words, the underlay mat as such consists of a plastic material which itself has a certain cushioning function, because this material as such provides a spring travel, even if relatively small overall by comparison with the mattress. The spring constant of the plastic flat material will usually be substantially greater than the spring constant of the mattress itself. The underlay mat thus forms a relatively hard spring, where against the mattress forms a softer spring. This combination has proved to be advantageous for the transport problem present here.

Various materials can be used as plastic flat material providing a spring travel. Use can obviously be made of foam materials, air-bubble films or plastic materials which find use in foam mattresses. In that case, however, of particular significance is the fact that the requisite tensile strength has to be achieved in longitudinal direction of the underlay mat. Further, certain safety features must be achieved like e.g. flame-resistance or the like.

Of particular significance, therefore, is a preferred embodiment of the rescue underlay according to the invention which is characterised in that the plastic flat material providing a spring travel is a spacer woven fabric or, in particular, a spacer knitted fabric. A spacer woven fabric is a material which has two fabric cover layers which are held at a spacing of a few millimetres by distance-maintaining bridge threads (information from the company Haufler Industrievertretungen under www.haufler-iv.de/abstandsgewebe.htm). Spacer knitted fabrics have textile outer surfaces of greater width of stitch link, the outer surfaces being connected by spacer threads and held at the desired distance. The spring characteristic of a spacer woven fabric or a spacer knitted fabric results from the spacer threads or bridge threads (data from Textilinstitut Greiz under www.titv-greiz.de/deulagwirker.htm).

Further preferred refinements and developments moreover form the subject of further sub-claims.

Claim 10 relates to a specific way to secure the patient securing belts to the rescue underlay when they are not in use in a way enabling tearing off of the free ends if necessary.

Claim 11, also a separate invention relating to the rescue underlay for mattresses, relates to a particular way to accommodate the patient securing belts when not in use. This is done in tunnel-like receptions preferably on the underside of the underlay mat as explained in this claim. Further subclaims related to this claim describe refinements.

Finally, it is explained that it is possible to permanently attach such rescue underlay to a mattress or even integrate a rescue underlay into a mattress. So part of the invention is a complete rescue mattress integrating the describe rescue underlay as well.

The invention is explained in more detail in the following by reference to a drawing illustrating merely a preferred example of embodiment. In the drawing

- 5 Fig. 1 shows, in a perspective illustration, a rescue underlay for a mattress, which is here illustrated with a patient lying thereon,
- Fig. 2 shows an embodiment of a rescue underlay according to the invention,
- 10 Fig. 3 shows a head region of a rescue underlay according to Fig. 2,
- Fig. 4 shows a spacer knitted fabric as is preferably used as flat material providing a spring travel, in section,
- 15 Fig. 5 shows a second embodiment of a rescue underlay according to the invention in a plan view,
- Fig. 6 shows a third embodiment in that a mattress with a rescue underlay according to the invention permanently affixed to it or integrated into it.

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The subject of the invention is a rescue underlay for mattresses as has been described in the general part of the description.

25 Fig. 1 shows a mattress 1 on which a patient 3, covered by a cover 2, lies. Disposed under the mattress 1 is a rescue underlay with a rectangular underlay mat 4 consisting of a plastic flat material which has a high tensile strength and is preferably substantially tear-proof. The underlay mat 4 has approximately the dimensions of the mattress 1. Obviously it is possible in principle for the underlay mat 4 to be somewhat larger or somewhat smaller, particularly somewhat longer or somewhat shorter, than the mattress 1. However, it could also be imagined that there are different underlay mats 4 adapted to respectively differently sized mattresses 1.

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35 Since in the field of hospitals, homes for the elderly and nursing homes the dimensions of mattresses 1 are largely uniform, it is usually possible to manage with an underlay mat 4 of a specific format.

40 The underlay mat 4 serves, for the mattress 1, initially as a mattress protective cover. To that extent the underlay mat 4 has a classic function. Beyond that, this underlay mat 4 also serves as a rescue means in emergency, as has been described in the general part of the description. For that purpose the rescue underlay is provided with pull loops 5, patient securing belts 6 and mattress retaining bands 7 attached to the underlay mat 4 (Fig. 2). The pull loops 5 are disposed directly adjacent to one another at the edge of the underlay mat 4 at

both ends, so that the underlay mat 4 can be pulled in problem-free manner in both directions. The orientation of the underlay mat 4 under the mattress 1 thus does not matter.

5 Other pull aids, for example longer hand loops such as shown in US 5 150 487 A, can also be used instead of pull loops 5.

The patient securing belts 6 can also be arranged and connected in different mode and manner, the prior art showing a plurality of possibilities to which reference has already been made above.

10

Finally, it is recommended to also connect the underlay mat 4 of the rescue underlay in whatever manner to the mattress 1 itself. The illustrated mattress retaining bands 7 arranged at an angle in the corners correspond with that also realised in the state of the art from which the invention proceeds. Other prior art techniques show Velcro bands or additional belts.

15

Figs. 2 and 3 show the rescue underlay according to the invention in enlarged illustration and without mattress 1. Fig. 4 permits recognition of a section through the utilised plastic flat material of the underlay mat 4. To that extent the teaching of the invention is now to the effect that the plastic flat material of the underlay mat 4 is a flat material providing a spring travel. The advantages of a flat material, which itself provides a spring travel, as underlay mat 4 reside in the fact that an additional spring travel is provided, thus an additional cushioning takes place which is felt to be very comfortable by the transported persons in the case of transport.

25

A number of alternatives have been mentioned in the general part of the description for the plastic flat material providing a spring travel. In particular, sponge materials, air-bubble films or plastic materials such as used for foam mattresses come to mind for this purpose. However, with consideration of the requisite high tensile strength of the plastic flat material the illustrated, preferred form of embodiment of the rescue underlay according to the invention exhibits, as plastic flat material, a spacer woven fabric or a spacer knitted fabric. Spacer woven fabrics and spacer knitted fabrics are known as such from the state of the art. Their use is of particular advantage in the illustrated rescue underlay. Reference may be made to the cited references mentioned in the general part of the description with regard to spacer woven fabrics and spacer knitted fabrics.

35

It is recommended, for the present purpose of use, that the spacer woven fabric or spacer knitted fabric has a thickness of 4 mm to 20 mm, preferably approximately 6 mm to approximately 14 mm, especially of 6 mm or of 10 mm or of 14 mm. With regard to a spacer woven fabric of 6 mm, reference may be made to a technical data sheet of Müller-Textil GmbH, Industriestrasse 8, 51674 Wiehl, for the article 5754-0600 with a thickness of 6.0 mm or for the article 5556-1000 for a material of the thickness of 10.0 mm.

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Spacer knitted fabrics of Müller Textil GmbH have, for example, the technical data sheet for the article 5900-1000 for a material with 10 mm thickness. In general, reference may be made here to the web page of the company Müller Textil GmbH under www.muellertextil.de.

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Spacer knitted fabrics and spacer woven fabrics have become known, in particular, from polyester material. Polyester is also a selection of interest for other plastic materials which provide a spring travel.

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Moreover, for the definition of the plastic flat material for the underlay mat 4 a flame-resistant or even fire-proof material is preferred. Moreover, it is considered an advantage that a non-decaying material is used. It is advisable that the material should not be hygroscopic, in order to keep the mattress dry. This is an advantage for cleaning of the rescue underlay, too. Apart from the above mentioned polyester material a polyamide fiber material, in particular an aramide fiber material (trade name Kevlar), a glass fiber material or a saran fiber material is a reasonable choice (the description of the different materials can be found in RÖMPP "Chemie", 10. edition 1996-1999, Georg Thieme Verlag Stuttgart, New York.

15

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The embodiment illustrated in Fig. 4 moreover shows that in accordance with preferred teaching of the invention the flat material providing a spring travel, in particular the spacer woven fabric or spacer knitted fabric, has at the underside a closed plastic film coating 8 preferably of polyurethane material or polyester material, which has a low sliding friction, preferably a lower sliding friction than the plastic flat material itself. In Fig. 4a) this coating is illustrated at the top and Fig. 4b) shows the normal cover layer at the top. In the illustrated embodiment there is provided a polyurethane coating which is sealed, non-water-permeable, washable and readily capable of being disinfected. The sliding friction of such a coating is so low that the rescue underlay can be easily pulled over smooth floor coverings. This facilitates transport of the patient by rescue personnel.

25

30

Different demands are imposed on the slidability of the rescue underlay. On a flat path, the lowest possible sliding friction shall be present. However, this can lead to the consequence that on a sloping path or on stairs the rescue underlay can slip too quickly, which prejudices handling of the rescue underlay by the rescuer. According to a further and preferred teaching which is indicated in connection with Fig. 2, it can be provided that the plastic flat material has on the underside, especially on the film coating 8, at least an area with higher sliding friction which can as a braking surface 9. In the illustrated and preferred embodiment it is provided that the braking surface 9 is arranged in at least one end region of the underlay mat 4. Preferably a braking surface 9 is arranged at the underside of the underlay mat 4 in each end region of the underlay mat 4, particularly on the film coating 8.

35

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The arrangement of the braking surface 9 at the indicated locations is based on the recognition that an end region of the underlay mat 4 during pulling of the rescue underlay by a res-

cuers is inevitably raised from the ground. The braking surface 9 here is ineffective. The other end region of the underlay mat 4 is less strongly loaded than the middle region of the underlay mat 4, because in the other end region either the head or the feet of the patient 3 is or are disposed according to the respective position of the patient 3. The heavier middle region of the patient 3, which ensures high friction by high force of pressing on the ground, is disposed therebetween. By raising the rescue underlay together with the mattress 1 and the patient 3 a rescuer on the stairs or on a sloping piece of ground can more strongly load the braking surface 9 at the opposite end in intended manner so that the braking effect increases. In particular, this is more or less automatically the case on stairs.

Fig. 3 moreover shows that in the illustrated example of embodiment it is further provided that an additional layer 10 of a flat material providing a spring travel, particularly a spacer woven fabric or a spacer knitted fabric, is fixedly attached, in particular sewn, glued and/or welded, to the underlay mat 4, preferably at the underside in an end region. The additional layer 10 of a flat material providing a spring travel is, in particular, similarly a spacer woven fabric or spacer knitted fabric, preferably such with a somewhat greater thickness.

Figs. 2 and 3 of the drawing allow particularly clear recognition that the illustrated rescue underlay is also particularly advantageously designed with respect to the furnishing of the patient securing belt 6 in the rest state. This is a different and independent advantage of the present rescue underlay. It is provided, in particular, that the patient securing belts 6 are placed at the edge of the underlay mat 4 and connected at the free ends thereof with the material of the underlay mat 4 by stitching or by means of Velcro connections in a way enabling tearing off of the free ends if necessary. At the ends of the closure elements 11 the patient securing belts 6 are here fastened to the underlay mat 4 by a few stitches. Thus, the patient securing belts 6 are normally accommodated in virtually invisible manner under the mattress 1, but nevertheless can be quickly separated at the ends by tearing off from the underlay mat 4 in order to fix the patient 3.

Fig. 5 shows an embodiment of the rescue underlay with an underlay mat 4 providing in addition to the pull loops 5 at the edge of the underlay mat 4 a longer end pull loop 5' at the head end. Fig. 5 shows the hand pull loop 5' extended and, in dashed lines, in its non-used position. In this position it is inserted between the pull loops 5 under the underlay mat 4. By means of the extended hand pull loop 5' the head end underlay mat 4 can be managed by a rescuer for example when transporting a patient downstairs, without the rescuer necessarily bending too much.

Pull loops 5 should have a sufficient gripping width so that a rescuer with thick safety gloves can easily grip the pull loops 5.

Safety regulations in particular in Germany explain that safety relevant parts, in particular the closure elements 11 of the quick action and quick release buckles for the patient securing belts 6 should preferably be in blue colour.

5 The embodiment shown in Fig. 5 has a particular design in that the underlay mat 4, preferably on its underside is provided with tunnel-like receptions 12 accommodating the patient securing belts 6, wherein the patient securing belts 6 when not in use are positioned within the tunnel-like receptions 12 lengthwise, wherein one end of the respective patient securing belt 12, in particular a closure element 11 at the end of the patient securing belt 12, is protruding from the tunnel-like reception 12 such that it can be easily located and gripped in a rescue situation.

10 In this embodiment it is provided that the tunnel-like receptions 12 are positioned substantially transversely to the underlay mat 4. The embodiment shows that one tunnel-like reception 12 houses both parts of the patient securing belt 6. In a rescue situation the parts can be drawn from the tunnel-like reception 12 in opposite directions so that the closure elements 11 on the ends of the parts can be connected to secure the patient 3 on the mattress 1.
15 However, an alternative is to house each part of a patient securing belt 6 in its own tunnel-like reception 12.

Further it is provided here that the tunnel-like receptions 12 are connected to the underlay mat 4 by sewing, in particular to the underside thereof. In the case that an additional layer is positioned on the underside of the plastic flat material to form a plastic film coating 8 it may be an option to use this plastic film coating 8 to form the tunnel-like receptions 12 on the underside of the underlay mat 4 by means of respective darts.

25 The embodiment of Fig. 5 discloses the quick connecting systems as closure elements 11 on the patient securing belts 6.

30 The embodiment of Fig. 5 further discloses that here the rescue underlay comprises altogether three patient securing belts 6 positioned in different distances from the head end of the underlay mat 4, wherein those distances preferably are about 50 cm, about 80 cm and about 120 cm.

In Fig. 5 the pull loops 5 are shown to be attached to the underlay mat 4 from the upper side. Of course, they can be attached to the underlay mat 4 from the underside as well if this is to be preferred from a handling standpoint. Such option is disclosed in Fig. 1.

35 Finally, there is provided a mattress characterised in that a rescue underlay, preferably according to any one of the claims 1 to 14 is permanently affixed to the mattress or is integrated into the mattress. This is then a kind of "rescue mattress" as such. This is indicated with the integrated mattress shown in Fig. 6.

Claims:

1. Rescue underlay for mattresses (1), comprising
a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a
5 high tensile strength, the dimensions of which approximately correspond with the dimen-
sions of the mattress (1),
pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands
(7) or the like, all attached to the underlay mat (4),
characterised in that
10 the plastic flat material of the underlay mat (4) is a flat material that itself is providing a
spring travel.
2. Rescue underlay according to claim 1, characterised in that the plastic flat material is a
spacer woven fabric or, in particular, a spacer knitted fabric.
- 15 3. Rescue underlay according to claim 2, characterised in that the spacer woven fabric or
spacer knitted fabric has a thickness of 4 mm to 20 mm, preferably of approximately 6 mm
to approximately 14 mm, particularly of 6 mm or of 10 mm or of 14 mm.
- 20 4. Rescue underlay according to any one of the claims 1 to 3, characterised in that the
plastic flat material is a flame-resistant or fire-proof material and/or a non-decaying mate-
rial and/or a non-hygroscopic material and/or polyester material, polyamide fiber material,
in particular aramide fiber material, glass fiber material or saran fiber material.
- 25 5. Rescue underlay according to any one of the claims 1 to 4, characterised in that the
plastic flat material, particularly the spacer woven fabric or spacer knitted fabric, has at the
underside a closed plastic film coating (8), preferably of polyurethane material or of poly-
ester material which has a low sliding friction, preferably a lower sliding friction than the
plastic flat material itself.
- 30 6. Rescue underlay according to claim 5, characterised in that the film coating (8) is wa-
ter-impermeable, washable and readily able to be disinfected as well as, preferably, air-
permeable.
- 35 7. Rescue underlay according to any one of the claims 1 to 6, characterised in that the
plastic flat material has on the underside, particularly on the film coating (8), at least one
area with higher sliding friction which optionally acts as a braking surface (9).
- 40 8. Rescue underlay according to claim 7, characterised in that the braking surface (9) is
arranged in at least one end region of the underlay mat (4).
9. Rescue underlay according to any one of the claims 1 to 8, characterised in that an ad-
ditional layer (10) of a plastic flat material providing a spring travel, particularly a spacer

woven fabric or a spacer knitted fabric, is fixedly attached, particularly sewn, glued and/or welded, to the underlay mat (4), preferably at the underside, in an end region thereof.

5 10. Rescue underlay for mattresses (1), comprising
a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a
high tensile strength, the dimensions of which approximately correspond with the dimen-
sions of the mattress (1),
pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands
(7) or the like, all attached to the underlay mat (4),
10 particularly according to any one of the claims 1 to 9,

characterised in that

the patient securing belts (6) are placed at the edge of the underlay mat (4) and are con-
nected at the free ends thereof with the material of the underlay mat (4) by sewing or by
means of Velcro connections in a way enabling tearing off of the free ends if necessary.

15

11. Rescue underlay for mattresses (1), comprising
a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a
high tensile strength, the dimensions of which approximately correspond with the dimen-
sions of the mattress (1),
20 pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands
(7) or the like, all attached to the underlay mat (4),
particularly according to any one of the claims 1 to 9,

characterised in that

the underlay mat (4), preferably on its underside, is provided with tunnel-like receptions
25 (12) accommodating the patient securing belts (6), wherein the patient securing belts (6)
when not in use are positioned within the tunnel-like receptions (12) lengthwise, wherein
one end of the respective patient securing belt (12), in particular a closure element (11) at
the end of the patient securing belt (12), is protruding from the tunnel-like reception (12)
such that it can be easily located and gripped in a rescue situation.

30

12. Rescue underlay according to claim 11, characterised in that the tunnel-like receptions
(12) are positioned substantially transversely to the underlay mat (4).

35 13. Rescue underlay according to claim 11 or claim 12, characterised in that the tunnel-
like receptions (12) are connected to the underlay mat (4) by sewing, in particular to the
underside thereof.

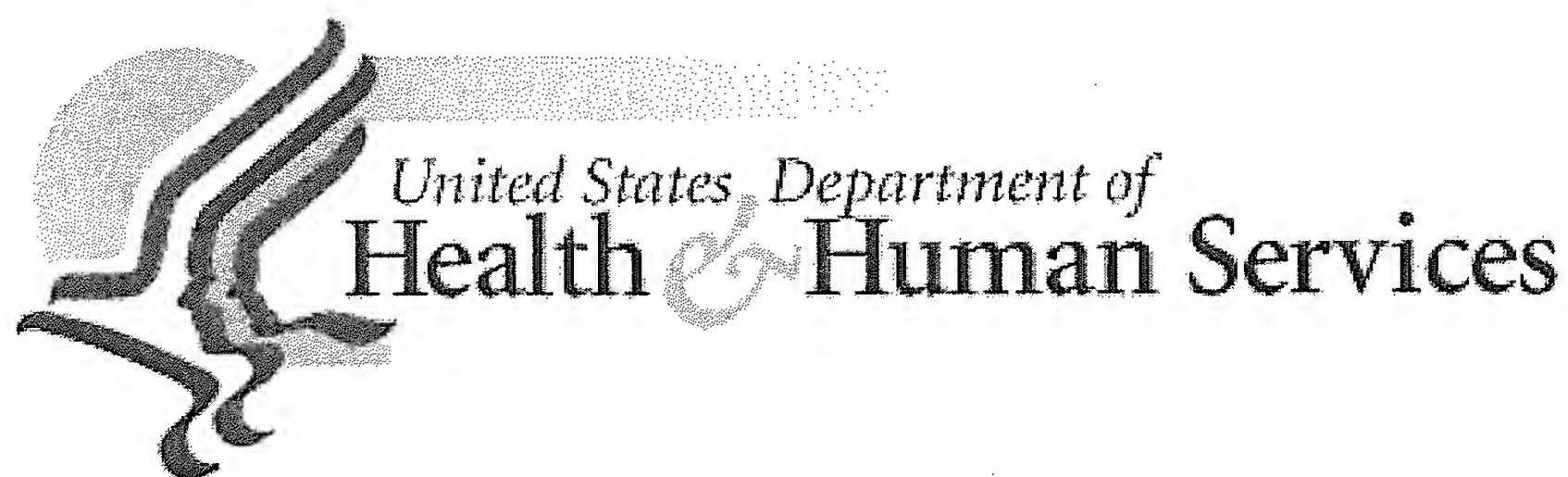
40 14. Rescue underlay according to any one of the claims 1 to 13, characterised in that the
rescue underlay comprises altogether three patient securing belts (6) positioned in different
distances from the head end of the underlay mat (4), wherein those distances preferably are
about 50 cm, about 80 cm and about 120 cm.

15. Mattress characterised in that a rescue underlay, preferably a rescue underlay according to any one of the claims 1 to 14, is permanently affixed to the mattress or is integrated into the mattress.

Abstract:

Disclosed is a rescue underlay for mattresses (1), comprising a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a high tensile strength, the dimensions of which approximately correspond with the dimensions of the mattress (1), pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands (7) or the like, all attached to the underlay mat (4). This particular rescue underlay has an underlay mat 4 which has a flat material that itself is providing a spring travel. In a preferred embodiment the plastic flat material of the underlay mat 4 is a spacer woven fabric or, in particular, a spacer knitted fabric. A mattress can be separately combined with such rescue underlay or can even be integrated with a rescue underlay to form a rescue mattress.

(Fig. 5)

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Overweight and Obesity: At a Glance

THE FACTS ABOUT OVERWEIGHT AND OBESITY

- 61% of adults in the United States were overweight or obese (BMI > 25)* in 1999.
- 13% of children aged 6 to 11 years and 14% of adolescents aged 12 to 19 years were overweight* in 1999. This prevalence has nearly tripled for adolescents in the past 2 decades.
- The increases in overweight and obesity cut across all ages, racial and ethnic groups, and both genders.
- 300,000 deaths each year in the United States are associated with obesity.
- Overweight and obesity are associated with heart disease, certain types of cancer, type 2 diabetes, stroke, arthritis, breathing problems, and psychological disorders, such as depression.
- The economic cost of obesity in the United States was about \$117 billion in 2000.

HEALTH DISPARITIES

Based on national survey data collected between 1988 and 1994:

- The prevalence of overweight and obesity increases until about age 60, after which it begins to decline.
- In women, overweight and obesity are higher among members of racial and ethnic minority populations than in non-Hispanic white women.
- In men, Mexican Americans have a higher prevalence of overweight and obesity than non-Hispanic whites or non-Hispanic blacks. The prevalence of overweight and obesity in non-Hispanic white men is greater than in non-Hispanic black men.
- 69% of non-Hispanic black women are overweight or obese compared to 58% of non-Hispanic black men.
- 62% of non-Hispanic white men are overweight or obese compared to 47% of non-Hispanic white women. However,

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- [HealthierUS](#)

when looking at obesity alone

(BMI > 30)*, slightly more non-Hispanic white women are obese compared to non-Hispanic white men (23%; 21%).

- For all racial and ethnic groups combined, women of lower socioeconomic status (income < 130 percent of poverty threshold) are approximately 50% more likely to be obese than those of higher socioeconomic status.
- Mexican American boys tend to have a higher prevalence of overweight than non-Hispanic black or non-Hispanic white boys.
- Non-Hispanic black girls tend to have a higher prevalence of overweight than Mexican American or non-Hispanic white girls.
- Non-Hispanic white adolescents from lower income families experience a greater prevalence of overweight than those from higher income families.

- HHS Task Force on Drug Importation

CAUSES OF OVERWEIGHT AND OBESITY

- Overweight and obesity result from an imbalance involving excessive calorie consumption and/or inadequate physical activity.
- For each individual, body weight is the result of a combination of genetic, metabolic, behavioral, environmental, cultural, and socioeconomic influences.
- Behavioral and environmental factors are large contributors to overweight and obesity and provide the greatest opportunity for actions and interventions designed for prevention and treatment.

PHYSICAL ACTIVITY AND INACTIVITY

- It is recommended that Americans accumulate at least 30 minutes (adults) or 60 minutes (children) of moderate physical activity most days of the week. More may be needed to prevent weight gain, to lose weight, or to maintain weight loss.
- Less than 1/3 of adults engage in the recommended amounts of physical activity.
- Many people live sedentary lives; in fact, 40% of adults in the United States do not participate in any leisure time physical activity.
- 43% of adolescents watch more than 2 hours of television each day.
- Physical activity is important in preventing and treating overweight and obesity and is extremely helpful in maintaining weight loss, especially when combined with healthy eating.

*Please see fact sheet "Measuring Overweight and Obesity" for a definition of Body Mass Index (BMI).

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ground design promoted in and of itself or recognized by purchasers as trademark for clothing items to which it is applied); In re Pingel Enterprise Inc., *supra*, (absence of advertising or promotion of trademark significance of product configuration makes consumer recognition as trademark unlikely). Here, not only is there minimal evidence that applicant has promoted the presence of a hologram per se on its trading cards, regardless of design or content, as an indication of origin, but, even more significantly, there is no competent evidence of consumer recognition of the hologram as a trademark.

Moreover, we have the counterbalancing effect of the similar use of holograms by competitors in the field. As pointed out earlier, evidence has been made of record showing the use by others of comparable hologram devices on trading cards. While applicant may argue that these are not trademark uses, the common use of holograms for non-trademark purposes means that consumers would be less likely to perceive applicant's uses of holograms as trademarks. Holograms in general have an anti-counterfeiting function; applicant has admitted that even its hologram serves this purpose. Furthermore, while applicant may argue that every trademark has an anti-counterfeiting function, the opposite is not true. Not every anti-counterfeiting device functions as a trademark. This is blatantly obvious from the evidence of record showing common use of holograms on a variety of items for anti-counterfeiting and verification purposes, but not source identification.

Accordingly, we find that applicant has failed to establish that the mere presence of its hologram device, and not in connection with the design, location, content or other characteristics of any particular hologram, functions as a trademark for trading cards.

Decision: The refusals to register under Section 1 on the ground that applicant is seeking to register more than one mark and under Sections 1, 2, and 45 on the ground that the hologram device of applicant fails to function as a trademark are affirmed.

In re Zurko

U.S. Court of Appeals
Federal Circuit

No. 96-1258

Decided August 2, 2001

PATENTS

[1] Patentability/Validity — Obviousness — Combining references (§ 115.0905)

JUDICIAL PRACTICE AND PROCEDURE

Procedure — Judicial review — Standard of review — Patents (§ 410.4607.09)

Decision of Board of Patent Appeals and Interferences sustaining obviousness rejection of patent application for method of improving security in computer system is reversed, even though board's factual findings underlying its determination are reviewed under "substantial evidence" standard, since prior art references relied upon by board do not teach limitation requiring communications between user and "trusted" environment along "trusted" path, and since deficiencies of references cannot be remedied by reliance upon additional combination of alternative references cited for first time on appeal, or by board's general conclusion, unsupported by evidence in record, that requiring communication with trusted environment over trusted path would be "basic knowledge" or "common sense" to person of ordinary skill in art; although board's expertise alone may provide sufficient support for conclusions as to peripheral issues, its core factual findings in patentability determinations must be supported by concrete evidence in record.

On remand from the U.S. Supreme Court.
Patent application of Mary E. Zurko, Thomas A. Casey Jr., Morie Gasser, Judith S. Hall, Clifford E. Kahn, Andrew H. Mason, Paul D. Sawyer, Leslie R. Kendall, and Steven B. Lipner, serial no. 07/479,666 (method for improving security in a computer system). Board of Patent Appeals and Interferences sustained examiner's rejection of application under 35 U.S.C. § 103. The U.S. Court of Ap-

peals for the Federal Circuit reversed on appeal (42 USPQ2d 1476). On rehearing en banc, the Federal Circuit held (46 USPQ2d 1691) that proper standard of review for fact findings underlying patentability determinations by Patent and Trademark Office is "clearly erroneous" standard, rather than more deferential standard found in Administrative Procedure Act. The U.S. Supreme Court reversed the Federal Circuit's en banc decision and remanded, holding (50 USPQ2d 1930) that PTO's findings of fact must be reviewed under either "substantial evidence" or "arbitrary and capricious" APA standards of review. On remand, the Federal Circuit again reverses board's decision.

Linda Moncys Isacson, associate solicitor, John M. Whealan, solicitor, and Kenneth R. Corsello and Thomas J. Finn, associate solicitors, U.S. Patent and Trademark Office, Arlington, Va., for Commissioner of Patents and Trademarks.

John F. Sweeney, Michael O. Cummings, Jon T. Hohenthanner, Israel Blum, Steven F. Meyer, and Brenda Pomerance, of Morgan & Finnegan, New York, N.Y.; Irene Kosturakis and Russell T. Wong, of Compaq Computer Corp., Houston, Texas; Ernest Gellhorn, Washington, D.C.; Janice M. Mueller, of Suffolk University Law School, Boston Mass.; Ronald C. Hudgens, of Digital Equipment Corp., Maynard, Mass., for Mary E. Zurko et al.

Before Newman, circuit judge, Archer, senior circuit judge, and Michel, circuit judge.

Archer, S.J.

This case is before us on remand from the Supreme Court of the United States. *Dickinson v. Zurko*, 527 U.S. 150, 50 USPQ2d 1930 (1999) ("Zurko III"). In *Zurko III*, the Court reversed our judgment and remanded the case because we had reviewed the factual findings of the Board of Patent Appeals and Interferences ("Board") for clear error, an incorrect standard of review.

The Board decision at issue, *Ex parte Zurko*, No. 94-3967 (Bd. Pat. Apps. & Int. Aug. 4, 1995), sustained the rejection of U.S. Patent Application No. 07/479,666 ("the '666 application") under 35 U.S.C. § 103 (1994). In our initial review of this decision, we determined that the Board's findings were clearly erroneous and we reversed. *In re Zurko*, 111 F.3d 887, 42 USPQ2d 1476 (Fed.

Cir. 1997) ("Zurko I"). At the Commissioner's suggestion, we then reheard this case en banc to reconsider the question of the appropriate standard of review. The Commissioner argued that Board findings should be reviewed under the standards of the Administrative Procedure Act (APA), namely the substantial evidence or arbitrary and capricious standard. 5 U.S.C. § 706 (1994). The en banc court held, however, that clear error was the correct standard of review for Board findings of fact and adopted the conclusions of the original panel decision. *In re Zurko*, 142 F.3d 1447, 46 USPQ2d 1691 (Fed. Cir. 1998) ("Zurko II").

The Commissioner then petitioned for review by the Supreme Court, and the Court reversed, holding that Board findings of fact must be reviewed under the APA standards of review. The Court did not specify which APA standard of review to apply, substantial evidence or arbitrary and capricious. We subsequently decided this question in *In re Gartside*, 203 F.3d 1305, 53 USPQ2d 1769 (Fed. Cir. 2000), and held that substantial evidence is the correct APA standard of review for Board factual findings.

We now revisit the merits of our decision in *Zurko I*, applying the proper APA standard of review. In doing so, we conclude that the outcome of this case does not change with the application of this new standard of review. Because the factual findings underlying the Board's decision are not supported by substantial evidence, we reverse.

BACKGROUND

The '666 application concerns a method for more efficiently creating a secure computer environment. Secure, or "trusted," computer environments employ trusted software designed to preclude unauthorized users and to prevent unintended or unauthorized commands. Such trusted software is often quite costly, compared to untrusted software, so it is desirable to minimize the amount of trusted software in the system. Applicants claim a method for processing trusted commands with a minimum of trusted software.

Representative claim one reads as follows:

1. A machine-executed method for executing a trusted command issued by a user on a computer system, the computer system including an untrusted computing environment and a trusted computing environment, said method comprising the steps of:

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(a) parsing the trusted command in the untrusted computing environment to generate a parsed command;

(b) submitting the parsed command to the trusted computing environment;

(c) displaying a representation of the trusted command to the user through a trusted path;

(d) receiving a signal from the user through a trusted path signifying whether the displayed representation accurately represents the user's intentions;

(e) if the signal signifies that the displayed representation does not accurately represent the user's intentions, then preventing the execution of the parsed command;

(f) if the signal signifies that the displayed representation accurately represents the users intentions, executing the parsed command in the trusted environment.

As set forth in claim one, applicants' method involves processing and verifying a trusted command using both trusted and untrusted software. A trusted command is first processed by untrusted software to create a parsed command. The parsed command is then submitted to the trusted computer environment. Execution of this command requires verification along a trusted path. The parsed command is relayed to the user along a trusted path, and, if correct, the user can send a confirming signal back along this trusted path, allowing execution of the command. By processing a trusted command in this manner, the applicants contend they reduce the amount of trusted software. The applicants assert that the parsing step generally requires a large amount of software and that performing this step with untrusted software greatly reduces the amount of trusted code required to process a trusted command.

The Board sustained the Examiner's rejection of claims 1, 4, and 5 of the '666 application under 35 U.S.C. § 103 based on two prior art references. The primary reference is the UNIX operating system, as described in the applicants' information disclosure statement ("IDS"). According to this description, the UNIX system employs both untrusted and trusted code. Furthermore, certain commands in a UNIX system may be parsed in an untrusted environment, and then these parsed

commands may be executed by "calling a trusted service that executes in a trusted computing environment."

The secondary reference, also described in applicants' IDS, is Dunford, FILER Version 2.20 ("FILER2"). This program repeats back potentially dangerous commands, requesting confirmation from the user before execution.

Considering the teachings of these two references, the Board concluded that the invention claimed by the '666 application would have been obvious. The Board commented that "the artisan would have been led from these teachings to take the trusted command parsed in an untrusted environment and submitted to the trusted computing environment, as taught by UNIX, and to display the parsed command to the user for confirmation prior to execution, as suggested by [FILER2]." *Ex parte Zurko*, slip op. at 6-7. According to the Board, this combination would render the claimed invention obvious.

The Board also responded to applicants' arguments that neither reference discloses a trusted path communication to the user and that no teaching of the prior art references motivates the combination of these references to create the claimed invention. The Board said that communication along a trusted path, if not explicit in the prior art, is either inherent or implicit. *Id.* at 7. The Board further adopted the Examiner's assertion that "it is basic knowledge that communication in trusted environments is performed over trusted paths." *Id.* at 8. As for the motivation to combine these references, the Board concluded that it "would have been nothing more than good common sense" to combine the teachings of these references. *Id.* The Board noted that FILER2 taught the verification of dangerous commands in general, suggesting verification of the parsed command submitted to the trusted computing environment in UNIX. Because this verification occurs within a trusted environment, it is "basic knowledge," according to the Board, that this verification would occur along a trusted path. *Id.* at 7-8.

Reviewing the Board's decision in *Zurko I*, we held that "the Board's finding that the prior art teaches, either explicitly or inherently, the step of obtaining confirmation over a trusted pathway [was] clearly erroneous." *Zurko I*, 111 F.3d at 889, 42 USPQ2d at 1478. Indeed, we noted that neither reference relied upon by the Board taught communication with

[1] As to this first issue, the Commissioner apparently concedes that neither the UNIX IDS disclosure nor FILER2 teaches communications between the user and the trusted environment along a trusted path. Nevertheless, the Commissioner maintains that the Board's findings concerning the content of the prior art are supported by four other references in the record.¹ The Commissioner argues that these additional references describe modified UNIX systems that allow communication over both trusted and untrusted paths. Therefore, the Commissioner argues, the Board's general findings concerning the content of the prior art have substantial evidence support, as does its ultimate conclusion of obviousness.

We are unpersuaded by the Commissioner's arguments. The Board's conclusion of obviousness was based on the UNIX and FILER2 references. The Board's findings with respect to these references simply cannot be supported by the alternative references identified by the Commissioner on remand. To the contrary, these alternative references merely confirm the well-known fact that conventional UNIX systems do not allow communication between the user and the trusted environment along a trusted path. For example, Johrie et al., U.S. Pat. No. 4,918,653, comments that "[s]ome examples of prior art multi-user operating systems which have not provided an effective mechanism for establishing a trusted path include UNIX" Johrie, col. 1, II. 60-63.

The Commissioner also cannot now mend the Board's faulty conclusion of obviousness by substituting these alternative references for those relied upon by the Board. This new combination of references would constitute a new ground for rejection, not considered or relied upon by the Examiner or the Board. It is well settled that it would be inappropriate for us to consider such a new ground of rejection. *In re Margolis*, 785 F.2d 1029, 1032; 228 USPQ 940, 942 (Fed. Cir. 1986); see also *Koyo Seiko Co., Ltd. v. United States*, 95 F.3d

1094, 1099 (Fed. Cir. 1996) (holding that "[t]he grounds upon which an administrative order must be judged are those upon which the record discloses that its action was based.") (quoting *SEC v. Chenery Corp.*, 318 U.S. 80, 87 (1943)).

Finally, the deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is "basic knowledge" or "common sense" to one of ordinary skill in the art. As described above, the Board contended that even if the cited UNIX and FILER2 references did not disclose a trusted path, "it is basic knowledge that communication in trusted environments is performed over trusted paths" and, moreover, verifying the trusted command in UNIX over a trusted path is "nothing more than good common sense." *Ex parte Zurko*, slip op. at 8. We cannot accept these findings by the Board. This assessment of basic knowledge and common sense was not based on any evidence in the record and, therefore, lacks substantial evidence support. As an administrative tribunal, the Board clearly has expertise in the subject matter over which it exercises jurisdiction. This expertise may provide sufficient support for conclusions as to peripheral issues. With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience — or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.² To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. *Baltimore & Ohio R.R. Co. v. Aderdeen & Rockfish R.R. Co.*, 393 U.S. 87, 91-92 (1968) (rejecting a determination of the Interstate Commerce Commission with no support in the record, noting that if the Court were to conclude otherwise "[t]he requirement for administrative decisions based on substantial evidence and reasoned findings — which alone make effective judicial review

¹ Specifically, the Commissioner points to Johrie et al., U.S. Pat. No. 4,918,653; E.J. McCauley et al., *KSOS: The Design of a Secure Operating System*, Ford Aerospace and Communications Corp. (1979); Stanley R. Ames, Jr. et al., *Security Kernel Design and Implementation: An Introduction*, IEEE Cat. No. 830700-001 (July 1983); and Simon Wiseman et al., *The Trusted Path Between Smite and the User*, Proceedings 1988 IEEE Symposium on Security and Privacy (April 18-21, 1988).

² As described above, we cannot accept the Commissioner's invitation to now search the record for references in support of the Board's general conclusions concerning the prior art. Even if any such references could support these conclusions, it would be inappropriate for us to consider references not relied upon by the Board. *In re Margolis*, 785 F.2d at 1032; 228 USPQ at 942.

possible — would become lost in the haze of so-called expertise"). Accordingly, we cannot accept the Board's unsupported assessment of the prior art.

CONCLUSION

The Board's conclusion of obviousness was based on a misreading of the references relied upon and, therefore, lacks substantial evidence support. Accordingly, the Board's judgment is reversed.

REVERSED.

D.W. Mercer Inc. v. Valley Fresh Produce Inc.

U.S. District Court
Middle District of Florida
No. 2:00-cv-294-FTM-29DNF
Decided May 8, 2001

JUDICIAL PRACTICE AND PROCEDURE

[1] Jurisdiction — Personal jurisdiction (§ 405.11)

Jurisdiction — Service of process — Long arm statutes (§ 405.1303)

Allegations of complaint and contents of affidavits are sufficient to establish that defendant corporation is subject to Florida's long-arm statute, Fla. Stat. § 48.193(1)(b), which premises personal jurisdiction on commission of tortious act within state, since those documents show that defendant shipped approximately 1,000 packages of strawberries bearing allegedly infringing trademarks into state; however, documents are not sufficient to show that defendants are subject to Section 48.193(1)(f), which premises personal jurisdiction on injury within state arising out of act or omission outside state, since documents show only economic injury, which is insufficient, without accompanying personal or property injury, to confer personal jurisdiction over non-resident defendants under that subsection.

[2] Jurisdiction — Personal jurisdiction (§ 405.11)

Jurisdiction — Service of process — Long arm statutes (§ 405.1303)

REMEDIES

Monetary — Damages — Personal liability of corporate officials (§ 510.0513)

Allegations of complaint and contents of affidavits are not sufficient to establish that individual defendant, alleged to be dominant force behind co-defendant corporation, is subject to Florida's long-arm statute, Fla. Stat. § 48.193(1)(b), since acts of corporate employee performed in corporate capacity do not form sufficient basis for jurisdiction over corporate employee in his or her individual capacity.

JUDICIAL PRACTICE AND PROCEDURE

[3] Jurisdiction — Personal jurisdiction (§ 405.11)

Non-resident corporation is subject to personal jurisdiction of federal district court in Florida in trademark infringement action, since commission of tortious act alleged in complaint, and corporation's shipment of approximately 1,000 packages of strawberries bearing allegedly infringing trademarks into Florida, are sufficient to establish required minimum contacts, and since, in view of those contacts, assertion of personal jurisdiction over corporation would comport with traditional notions of fair play and substantial justice.

Action by D.W. Mercer Inc. against Valley Fresh Produce Inc. and John A. Cottle for trademark infringement under Lanham Act. On defendants' motion to dismiss for lack of personal jurisdiction, or to transfer. Motion to dismiss granted, without prejudice, as to defendant John A. Cottle.

Jennifer L. Whitelaw, Naples, Fla., for plaintiff.

Lance D. Orloff, of Grant, Genovese & Baratta, Irvine, Calif.; John W. Lewis, of Henderson, Franklin, Starnes & Holt, Ft. Myers, Fla., for defendants.

Steele, J.

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